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TELECOMMUNICATIONS POLICY,
RESEARCH AND DEVELOPMENT

No. 124

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7 July 1980

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NONALINED INFORMATION COUNCIL HOLDS FINAL SESSION

JN072141 Baghdad INA in Arabic 2040 GMT 7 Jun 80

[Excerpt] The international council for coordination of information among the nonalined movement's states held its final session here tonight under the chairmanship of Iraqi Minister of Culture and Information Latif Nasif Jasim.

In its final report, the council adopted the Iraqi working paper as an important official document in view of the proposals it contained on activating the nonalined movement's information media. In this working paper, Iraq stressed its desire to protect the nonalined movement and keep it away from the influence of international struggle. It also stressed the importance of joint information action to break the information blackout imposed by world news agencies. The Iraqi working paper called for the establishment of a just information system, the holding of intellectual seminars and the coordination of the work of the nonalined pool in order to face the pressures to which the movement's states are exposed.

The council's final report also stressed the importance of cooperation among the nonalined movement's states in order to develop the basic structure of communication among the developing states.

The report also contained a report by the previous chairman of the coordination council, the accomplishments achieved between the Lome and Baghdad meetings and the yearly development of the council. It also contained a report by the chairman of the news agencies' pool, which included the pool's activities and future plans, particularly the preparations made for holding the next coordination committee meeting in Managua, the capital of Nicaragua, in August; the pool's readiness to cover the UNESCO general conference in September as well as all the important forthcoming events, particularly the nonalined world's events; and the report of the Cooperation and Radio Transmission Committee and what it achieved in the past period.

CSO: 5500

USSR DELIVERS SATELLITE COMMUNICATIONS STATION TO AFGHANISTAN

Satellite Delivered

LD060856 Moscow Domestic Service in Russian 0730 GMT 6 Jun 80

[Text] Our correspondent Viktor Bazilevich reports from Kabul: Soviet IL-76 cargo aircraft have brought a Mars satellite communications station to Afghanistan. It will give Afghan television viewers the chance to see broadcasts from the 1980 Olympics. Moreover, the station is designed to receive USSR central television programs in Afghanistan via communications satellites. The USSR has given the Mars station to the Democratic Republic of Afghanistan for temporary use. Later, in accordance with an agreement between the governments of the two countries, a permanent satellite communications station of the Intersputnik system will be built in Afghanistan with the assistance of Soviet specialists. For the time being Soviet specialists are completing the erection and adjustment of the Mars station. The Afghan technicians who will in future have to run the station are obtaining qualified assistance, learning how to handle the complex equipment and helping to carry out the erection work.

Television and radio in Afghanistan are most important news media. As the overwhelming majority of the republic's population are still not literate, there is understandable interest of the Afghan Government in the development of television in the country.

Satellite Link

LD101950 Kabul Radio in Pashto to Europe 1730 GMT 9 Jun 80

[Unidentified reporter's interview with Eng Mohammad Zarif, director of telecommunications of the Afghan Ministry of Communications--recorded, date and place not specified; questions and answers broadcast in Dari]

[Summary] Our dear listeners know that an agreement between the Democratic Republic of Afghanistan and the USSR Embassy was signed in Kabul on 19 March 1980, regarding a link between an artificial satellite and a small land unit called Mars and the installation of a [word indistinct] unit called

(Lotus). A Radio Afghanistan reporter has interviewed Eng Mohammad Zarif, the director of telecommunications at the Ministry of Communications, regarding this subject. [begin recording]

[Question] Eng Mohammad Zarif, director of telecommunications of the Ministry of Communications, could you please give us a detailed report regarding the Mars land unit which has been installed at television station?

[Answer] Very well. This is not a sending station, but in fact it is a unit which receives television broadcasts from satellites and brings them to our television station so our compatriots may watch these television broadcasts. This station is a mobile and small one. The USSR has given it to us as a grant-in-aid. This station will bring to us television broadcasts, particularly those concerning the 1980 Olympic Games, by means of an artificial satellite, as a result of which our compatriots will be able to watch the Moscow Olympics in their homes.

[Question] Could you please give us some information concerning the area of activity of this unit?

[Answer] Since the unit is a small and mobile unit, therefore it could be installed anywhere. Its area of activity is only between the artificial satellite, the station and our television studio.

[Question] Will this unit create any problem in the broadcast and operation of television?

[Answer] No, the unit is only a link between an artificial satellite and Moscow television, from where television waves are received, fed to our television studios and watched here. Therefore, it has no effect on the existing activity of our television. We will be able to show the Moscow Olympics to our people.

[Question] Will the other people in the country be able to benefit from this unit?

[Answer] As I said before it is not meant to send waves by itself, but only to bring us Moscow television, so people who watch Kabul television here will be able to watch Moscow television.

[Question] Which television channel can our dear compatriots use to watch the 1980 Moscow Olympics?

[Answer] As I said before this station only provides the link. There will not be any change in the channel.

[Question] Could our compatriots watch television programs from other countries through this unit?

[Answer] Yes, only if those other countries have television program exchanges with the USSR and the USSR wants to show those programs to its own people. Since we use the same satellite, we could also show the same broadcast to our people.

[Question] Could you tell us in detail about the operation of the other station, (Lotus)?

[Answer] As I said before the USSR has given us a small unit which has been given to us as a temporary means for watching the 1980 Moscow Olympics, but in the future a more advanced station, (Lotus) will be given to us as grant-in-aid by the USSR. It will need a better equipped station and more facilities, the planning stage of which is at hand. This will also make it possible to show our viewers programs of other countries through the USSR. This unit will have 12 telephone channels through which 12 persons could make telephone contact to Moscow, or through Moscow to the other countries of the world.

[Question] Does the Ministry of Communications have enough personnel to operate these units, and what measures have been taken in this regard?

[Answer] Unfortunately, concerning the training of technical personnel, the Ministry of Communications has not taken any measures. Since the unit is being brought by USSR specialists, they are going to install and operate it. A number of our able personnel will also work with the Soviet specialists, and they will get familiar with the technology and operation of the unit. In the future, perhaps, with the help of the USSR our personnel will get trained.

[Question] Could this unit use the satellites of other countries?

[Answer] The Mars station given to us by the USSR is only linked with the USSR satellite. Every country has different systems. At the moment we can only use the USSR satellite which is moving in the area of Afghanistan, and we cannot contact the satellites of the other countries of the world.
[end recording]

CSO: 5500

USSR-YAR TELEVISION, RADIO PROTOCOL

Protocol Signed

LDO30704 Moscow Radio in Arabic to the Arab world 1730 GMT 2 Jun 80

[Text] A protocol was signed today in Moscow on exchanges in the sphere of television and broadcasting for the years 1980-81 between the State Committee for Television and Radio Broadcasting of the Soviet Union and the YAR Broadcasting and Television General Establishment.

The protocol provides for the exchange of broadcasting and television material concerning the most important events in the life of the Soviet Union and the YAR, special programs on folklore and musical recordings.

The protocol was signed by the first deputy chairman of the State Committee for Television and Radio Broadcasting of the Soviet Union, Enver Mamedov, YAR Information and Culture Minister Yahya Al-'Arashi and the chairman of the YAR Broadcasting and Television General Establishment.

Ceremony Signing

[LDO30706 Editorial Report] Moscow Radio in Arabic to the Arab world at 1700 GMT on 2 June reports on the signing that day in Moscow of documents by the USSR and the YAR concerning exchanges in the sphere of television and radio broadcasting for 1980-81. The signing ceremony took place at the Soviet Ministry of Culture. Soviet Deputy Foreign Minister Igor Zemskov and YAR Minister of Culture Yahya Al-'Arashi signed one agreement and two protocols.

Zemskov delivered a speech in which he referred to cooperation between the two countries for over 50 years.

Then Al-'Arashi delivered a speech in which he said: "An agreement on technical and cultural cooperation, a protocol for cooperation in radio and television in the two countries and a protocol for cooperation between SABA News Agency and NOVOSTI were signed.

"Among the results of the visit was an exchange of views on a number of Arab issues, at the fore of which was the Palestine issue, as well as world issues. Our views were identical.

"We also have acquainted ourselves with the successes of the Soviet people in various aspects of life. We have admired everything we saw during the visit. It also offered us an opportunity to tell our friends in the Soviet Union what developments had taken place in various spheres. In general, the visit was a big opportunity for the officials of our two countries to develop cooperation, which is more than 52 years old. As you know, the YAR has special respect for the Soviet Union. It appreciates the role of the Soviet Union in consolidating the YAR against reactionary rule in the YAR [as heard] and enabling the Yemenis to strike at British colonialism in the south of the country.

"On my behalf and on the behalf of all members of the delegation, we express gratitude for the hospitality accorded us and the feelings shown to us. We are going to convey them sincerely to our country."

CSO: 5500

PANAMA WILL NOT RENEW ITT'S OPERATION LICENSE

PA131653 Panama City LA ESTRELLA DE PANAMA in Spanish 13 Jun 80 p A-1

[Passages within slantlines published in upper case]

[Text] In an unprecedented action which will make telecommunications history at both the national and the international levels, the president of the republic, His Excellency Aristides Royo, in a letter to ITT formally informed the company that his government has decided to support and reiterate the contents of various notes sent by the Ministry of Government and Justice and the general manager of the National Telecommunications Institute (INTEL) stating that the operations of the /All American Cables and Radio, Inc./ and of the /ITT Central America Cables and Radio, Inc./ must cease when their respective licenses to operate in Panama expire. The government, therefore, states its decision /not to grant either new concessions for the operation of telecommunications services or extensions of existing concessions.

In his brave and patriotic letter, President Royo informed a top-ranking U.S. executive of the transnational company that the details and procedures for the /end of operations without detriment or damage to the national and international telecommunications services/ offered in and from the Republic of Panama must be coordinated with INTEL, through which the corresponding arrangements must be made.

Finally, President Royo took the opportunity to express the national government's appreciation of the assistance extended by ITT in the development of international telecommunications in Panama and its cooperation in the efficient implementation of the Panamanian Government's policies in this regard.

CSO: 5500

WORLDWIDE AFFAIRS

HOANG TUNG OPENS HANOI RADIO CENTER

LD191250 Moscow Domestic Service in Russian 1030 GMT 19 May 80

[Summary] Sergey Alekseyev, our correspondent in the Socialist Republic of Vietnam, reports that a radio broadcasting center built with Soviet technical assistance in a Hanoi suburb was brought into service on full power today. Speaking at a ceremony to mark the event Hoang Tung, member of the Central Committee of the Vietnamese Communist Party and head of the Agitation and Propaganda Department of the Central Committee, said: [Begin Hoang Tung recording in Vietnamese, with superimposed Russian translation]

"The CPSU and the Soviet Government have given us a wonderful present. The voice of our Communist Party, the voice of our people's struggle, the voice of its friendship and solidarity with all who cherish the ideals of freedom, peace and socialism will be heard not only in our country but in various regions of Asia, Africa and Europe, tens of thousands of kilometers away."

CSO: 5500

WORLDWIDE AFFAIRS

HUNGARY OFFERS BOLIVIA RURAL TELECOMMUNICATIONS EQUIPMENT

PY271637 La Paz Radio Panamericana Network in Spanish 1130 GMT 27 May 80

[Excerpts] The minister of transportation and communications met with members of a mission technical-economic Hungarian who are offering Bolivia technical and financial cooperation to finance the installation of a rural telecommunications system.

The members of the Hungarian mission explained to the minister their experience with this project in Peru, where the Hungarian Government provided cooperation and technical assistance for the installation of rural telecommunications.

They said that the Hungarian Government intends to grant Bolivia a \$10 million credit to install rural telecommunications equipment. The Hungarians explained that the project would last 24 months and that technical assistance, a training course for Bolivian personnel and the necessary adjustments and changes would be provided during the first period of operation of the equipment.

Regarding technical aspects, they said that the equipment has 30 output channels in addition to high frequency mono-channels. The minister thanked the Hungarians for their offer and gave instructions to the technical organizations to immediately start studying this offer.

C80: 5500

BRIEFS

LAOS-USSR RADIO AGREEMENT--Vientiane, 5 Jun (KPL)--An agreement in installation of radio antenna was signed here, on June 2, between Laos and the USSR. Thongphet, deputy-head of the National Radio Department and S. V. Mikhailovich, economic vice-counsellor of the Soviet Embassy to Laos, signed the agreement. Witnessing the signing were Vanheuang Vongvichit, representative of the office of the Ministry of Propaganda, Information, Culture and Tourism; Chareun Vongsamang, director of the National Radio Department. Lao and Soviet radio experts were also on hand. The installation of the antenna will begin at the end of this year. [Text] [BK051009 Vientiane KPL in English 0913 GMT 5 Jun 80]

USSR-INDIAN TROPOSPHERIC COMMUNICATIONS--Delhi, 9 Jun (TASS)--Work on a tropospheric communications link between the USSR and India has entered the final stage. It is being carried out on the basis of a bilateral Soviet-Indian agreement of 1977. An official press release by the Indian Ministry of Communications, published here, notes that the multi-channel tropospheric communications line is to become operational towards November 1980. At present, as a TASS correspondent was told in the Indian Ministry of Communications, equipment is being assembled at the repeater station at (Chari-i-Sherf), a small town in the mountains situated 23 km from Srinagar (Kammu and Kashmir state). From here the radio bridge will span the mountain ridges of the Himalayas to Dushanbe, where a special communications station is also being built. The tropospheric communications link between the USSR and India is being built with the direct participation of Soviet and Indian scientists and specialists. The Soviet Union has already delivered to India the necessary radio-technical equipment for the station at (Chari-i-Sherf). The tropospheric communications link will make it possible to provide for the constant, reliable transmission of information between the two countries along direct channels. [Text] [LD100129 Moscow TASS International Service in Russian 1732 GMT 9 Jun 80]

IRAQI-YUGOSLAV COOPERATION--Baghdad, 9 Jun--A program for information cooperation until the end of 1982 was signed here today between Iraq and Yugoslavia. The program provides for cooperation between the two countries' two news agencies in the fields of information services, news exchange, facilities for correspondents, exchange of documentary films and visits between correspondents. [JN091304 Baghdad INA in Arabic 1040 GMT 9 Jun 80 JN]

SOVIET ANTENNA IN SRV--Hanoi VNA June 8--Installation of the parasollic mirror antenna of the Soviet-aided Hoa Sen (Lotus) satellite ground station was completed yesterday. The 6-ton antenna with a 12-metre diameter was lifted to a height of 26 metres and installed. This is the main project of the satellite ground station which will transmit sound and picture signals through an artificial satellite 360,000 kms from the earth. Vietnamese technicians and workers together with Soviet experts are racing against time to complete the installation of equipment and the control of technical parameters of the station. At the same time, they are installing the micro-wave systems in order to complete the whole project in early July this year before the Moscow Olympic Games open. [Text] [OW080821 Hanoi VNA in English 0723 GMT 8 Jun 80]

IRAQI-CUBAN AGREEMENT SIGNED--The Iraqi Radio and Television General Corporation signed a cooperation agreement today with the Cuban Radio and Television Institute. The agreement, which aims at strengthening bilateral cooperation in the fields of the exchange of programs and technical expertise, was signed by the director general of the corporation and the Cuban ambassador in Baghdad. [JN081744 Baghdad Domestic Service in Arabic 1700 GMT 8 Jun 80 JN]

INA, 'AGERPRES' COOPERATION--Baghdad, 27 May--Director General of the Iraqi News Agency Taha Yasin Hasan returned here tonight following a weeklong visit to Romania. During his visit, he held talks with Romanian officials on ways to bolster the two countries' information cooperation in general and cooperation between the Iraqi News Agency and the Romanian News Agency in particular. The talks also dealt with ways of developing the cooperation agreement concluded between the two agencies, making a study to link them with a direct line via the INA office in Vienna, exchanging correspondents and working visits to become acquainted with the nature of work in the two agencies and transferring the developments and accomplishments in both countries. [Text] [JN271845 Baghdad INA in Arabic 1810 GMT 27 May 80]

BULGARIAN, NICARAGUAN NEWS COOPERATION--Sofia, May 29 (BTA)--A cooperation agreement was signed here today by the BTA and the "New Nicaragua" News Agency of the Republic of Nicaragua. The two agencies will exchange news material on the internal and foreign policy of the two countries. They will render the necessary assistance to resident and special correspondents of the respective agency in implementing their journalistic tasks. [Text] [AU291925 Sofia BTA in English 1845 GMT 29 May 80 AU]

'KYODO'-'ADN' COOPERATION--Tokyo, June 16 KYODO--KYODO News Service announced Monday the signing of a new news/photo and cooperation agreement with ADN, the German Democratic Republic News Agency. The new agreement supersedes the KYODO-ADN agreement of February 6, 1961. It took effect on June 6 when signed by ADN Director General Guenter Poetschke in Berlin following signature by Takeji Watanabe, KYODO president, on May 27 in Tokyo.

The agreement calls for KYODO and ADN to exchange news and news photos and provide as much support as possible to each other's resident or visiting correspondents. KYODO now has news exchange accords with 37 foreign news agencies throughout the world. [Text] [OW160322 Tokyo KYODO in English 0246 GMT 16 Jun 80]

CBAC-BBC OFFICIALS MEET--Beijing, June 2 (XINHUA)--Vice-Premier Wang Renzhong met with a delegation from the British Broadcasting Corporation here this afternoon. The delegation is led by Mr. Ian Trethowan, director-general of the BBC. Vice-Premier Wang answered questions raised by the British visitors about China and world issues. Present were Zhang Xiangshan, director, and Zuo Moye, deputy director, of the Central Broadcasting Administration of China (CBAC); and Mr. Percy Cradock, British ambassador. Earlier in the day, a cooperation agreement on radio and television between the CBAC and the BBC was signed by Zhang Xiangshan and Mr. Trethowan. [Text] [OW021531 Beijing XINHUA in English 1522 GMT 2 Jun 80]

CZECHOSLOVAK-ETHIOPIAN BROADCASTING AGREEMENT--Jan Risko, central director of Czechoslovak Radio, and Gedamu Abreha, director general of the Ethiopian Radio, signed today an agreement on cooperation between the two broadcasting organizations. The agreement represents a new basis for the further development of mutual cooperation. [Text] [LD211724 Prague Domestic Service in Czech 1430 GMT 21 May 80]

ETHIOPIAN-PDRY INFORMATION AGREEMENT--A seven-article agreement on information cooperation and exchanges of information between the Ethiopian and Aden news agencies was signed this afternoon on behalf of the ETHIOPIAN NEWS AGENCY by Comrade Ahile Mariam Goshu, director of the ETHIOPIAN NEWS AGENCY, and for the ADEN NEWS AGENCY by Comrade Najib Muhammad Ibrahim, member of the Yemeni Socialist Party Central Committee and director of the ADEN NEWS AGENCY. The agreement was concluded between the news agencies of the two friendly countries in order to develop cooperation, understanding and expertise between the brotherly peoples of the PDRY and Ethiopia. The agreement will also promote exchanges of information on major international issues. The two sides have also agreed to exchange technical experts on journalism and to arrange brief exchange visits by journalists of the two countries for educational purposes. [Text] [Addis Ababa Domestic Service in Amharic 1700 GMT 26 May 80 EA]

TAIWAN, SAUDI COOPERATION PACT--Riyadh, May 26 (CNA)--CENTRAL NEWS AGENCY and SAUDI PRESS AGENCY entered into an agreement today to exchange features and newsletters as the first step toward establishing their close cooperation. The agreement was signed at the SPA headquarters in Riyadh by CNA President Frank C.C. Lin and SPA Acting Director-General Abu al-Faraj. Witnessing the signing at the ceremony were Chinese Ambassador Hsueh Yu-chi; Sheldon Peng, press counselor of the Chinese Embassy in Jidda; and senior SPA officials. Both agencies expressed in the agreement their sincere desire to achieve close cooperation for regional and worldwide collection and dissemination of accurate and impartial news as well as to promote mutual understanding and friendship between the people of the two countries. The agreement, which takes effect immediately, covers a period of one year but will be renewed automatically for another year when it expires every year. [Text] [OW261415 Taipei CNA in English 1447 GMT 26 May 80]

BULGARIAN-LAOTIAN JOURNALISTS AGREEMENT--Sofia, May 28 (BTA)--Today a cooperation agreement was signed here by the Union of Bulgarian Journalists and the Union of Laotian Journalists. It provides for cooperation between the two unions and also between editor's offices of papers and magazines in Bulgaria and Laos. Exchange of journalists and news material will be carried out under it. The Union of Bulgarian Journalists will help Laotian publicists in attaining higher qualification and also in research work in the sphere of journalism. [Text] [AU282010 Sofia BTA in English 1842 GMT 28 May 80]

GDR-NICARAGUAN NEWS AGENCY AGREEMENT--Berlin--ADN and the Nicaraguan News agency ANN today signed an agreement in Berlin on the exchange of news and photographs. ADN Director General Guenter Poetschke and ANN Deputy Director Francisco Hernandez Segura at the same time signed a working protocol containing a number of measures in support of further expanding the ANN agency, which was formed after the 1979 victory of the Sandinista liberation struggle. [Text] [LD221444 East Berlin ADN International Service in German 1348 GMT 22 May 80]

IRAQI-SOVIET RADIO-TV COOPERATION--Moscow, 24 May--Iraq and the Soviet Union today signed a radio and television cooperation protocol for the years 1980-81. The protocol provides for the exchange of programs and films on songs, music, plays, special programs and the training of cadres. The protocol was signed for Iraq by Hamid Sa'id, director of the Radio and Television General Establishment, and for the Soviet side by Lapin, chairman of the State Committee for Television and Radio Broadcasting. [Text] [JN241858 Baghdad INA in Arabic 1815 GMT 24 May 80]

CSO: 5500

SUBMARINE CABLE CONNECTION BETWEEN MADRAS, PENANG SOON

Islamabad THE MUSLIM in English 9 Jun 80 p 5

[Text] The Indian Ocean Commonwealth Cable Project (IOCOM) for the establishment of a broad-band submarine cable link between Madras and Penang in Malaysia will be ready for commissioning by October this year.

According to Post and Telegraph Department, this will provide an alternate route for India's external telecommunication to countries in the East as well as the U.S. Canada and other countries in the American continent.

After the commissioning of the cable which will have a capacity of 488 high grade telephone circuits, India will not have to solely rely on the existing westward route via European countries for traffic to the U.S. and Canada.

The project is being executed as a Commonwealth venture by India, Malaysia, Singapore, Hong Kong, Sri Lanka, Australia and Canada.

An agreement has already been reached with the U.S. for routing of 40 per cent of traffic on India-U.S. streams via the IOCOM cable. Therefore, the department says, the project will be highly remunerative with a pay-back period of nine-and-a-half years.

India's expenditure on the project for the cable system and the cost of terminal complex at Madras is estimated at Rs. 30.28 crores.

The cable will link India for the first time with the international high capacity Submarine Cable Network.

CSO: 5500

SINGAPORE CONSIDERING USE OF PALAPA SATELLITE

Jakarta KOMPAS in Indonesian 22 Apr 80 p 3

[Excerpts] Singapore Minister of Communications Ong Teng Cheong, during an inspection of the primary control station for the Palapa satellite in Cibinong, said his nation is preparing for possible use of some channels of the Indonesian satellite for communications between the two nations. This would be in connection with the program of cultural exchange.

He was impressed with the high degree of technology, and with the young Indonesian operators.

The [Singapore] preparations include finding a location for a ground station. Upon construction, the ground station can be linked with the satellite.

Previously, Principal Director of Perumtel, Ir Willy Moenandir, had announced that the use of the Palapa satellite by neighbor states was limited only by Indonesian needs for border communications and domestic communications, such as [the needs of] cities outside Jakarta, such as Medan, or other small cities. For Jakarta-Singapore communications, there are available channels in the international satellite, Intelstat, linked to Indonesia by the Jatiluhur ground station.

In the interest of facilitating communications, submarine cable communications between Jakarta and Singapore, called the submarine cable communications system, are being completed.

At the central control station, the party, which included Director General for Posts and Telecommunications Suryadi; Inspector General of the Department of Communications Ir Sutomo Adisamita, was given a short briefing by the station chief, Ir Saleh Gunawan, 35. It was announced that during almost 4 years of operation, the Palapa control station had not had serious problems. The same is true for the 47 other ground stations throughout Indonesia.

9197
CSO: 5500

INTER-ASIAN AFFAIRS

JAPANESE NEC TO BUILD BEIJING SATELLITE COMMUNICATIONS STATION

OW271049 Tokyo KYODO in English 1026 GMT 27 May 80

[Text] Tokyo May 27 KYODO--Nippon Electric Co. (NEC) announced Tuesday it has received a yen 2 billion (\$9.1 million) order to build a new ground station for satellite telecommunications in Beijing and also supply equipment for increasing an existing ground station's capability. The new station, the No 3 Beijing ground station, will be built just outside the Chinese capital by mid-1981, NEC said. The station will be used for international telecommunications between China and the Mideast, Africa and other Asian nations via the Intelsat IV-A and Intelsat V satellites.

The equipment for the existing ground station, the No 2 Beijing ground station, include antennas and radio communications apparatus, according to NEC. The construction of the No 3 Beijing ground station and enhancement of the No 2 station will sharply increase the Chinese capacity to conduct international telecommunications via satellites, it added.

CSO: 5500

BRIEFS

PRC-HONG KONG TELECOMMUNICATIONS LINKS--Hong Kong, May 30 (AFP)--A Chinese delegation has just completed discussions here with officials of Cable and Wireless Ltd aimed at expanding telecommunication links between Hong Kong and neighbouring Guangdong Province. No details were released but it was reliably learned that the proposals discussed envisaged a substantial increase in the current capacity of telephone and telegraph services as well as a new telex service. The Chinese delegation was headed by Mr. [name indistinct] Peizhen, deputy director of Guangdong's Posts and Telecommunications Administrative Bureau. [Text] [OW301038 Hong Kong AFP in English 0928 GMT 30 May 80]

ASEAN TV NEWSREEL TALKS--Discussions are underway to start a daily television newsreel exchange among the five ASEAN countries via satellite. Minister of Information Datuk Mohamed Fahmat told parliament that the exchange among Indonesia, Thailand, the Philippines, Singapore and Malaysia was part of the cooperation program implemented under the ASEAN committee on information and culture. He also said that exchange of entertainments and documentary television programs would be launched on a permanent basis between Malaysia and Indonesia in August. The joint production program between the two countries would be implemented next year. [Text] [BK171029 Kuala Lumpur International Service in English 0830 GMT 17 Jun 80]

'BERNAMA'-'ANTARA'-'PNA' EXCHANGE--Kuala Lumpur, 16 Jun (AFP)--The national news agencies of Malaysia, Indonesia and the Philippines will inaugurate a news exchange arrangement amongst them on Wednesday when (?they will launch) the press bulletin service (PBS). The service will herald the setting up of a direct news flow and linkage between them. The PBS is a point-to-point teleprinter circuit service for transmitting and receiving press bulletins. The bulletins will be sent by the three news agencies from the [word indistinct] currently based at [words indistinct] in Manila. Simultaneous transmission to Kuala Lumpur and Jakarta is made possible by a coding system linking both networks with a computer, called Mainla Aircon, which can store, forward and transmit items speedily. BERNAMA will also be receiving news items from the organisation of Asian news agencies (OANA) based at ANTARA headquarters in Jakarta, while OANA will also use the PBS facility to transmit their items. The PBS service is established by the three agencies as their contribution towards creating the new world information order to give a more just and balanced flow of information internationally. It is also aimed at promoting regional cooperation and understanding. [Text] [BK160951 Hong Kong AFP in English 0903 GMT 16 Jun 80]

CANBERRA CONTINUES PLANNING FOR DOMESTIC SATELLITE

'Satellite Debate' Reviewed

Canberra THE AUSTRALIAN in English 16 Apr 80, Supp., p 9

[Article by Mary McNamara: "The Satellite Debate Continues--but Who Is Going To Benefit?"]

[Text] By 1984 Australia should have its domestic satellite operational, thus opening up a new era of communications for the community in general, and for business.

The great satellite debate has been something of a non-event for the man in the street, and even now that the decision to invest has been made by the Government its significance is being largely overlooked.

For Australia the domestic satellite will mean linking the far flung sections of the outback, providing better health, education, welfare, communication and entertainment services.

Minister for Post and Telecommunications, Mr Tony Staley described the satellite as in the national interest when he announced the decision last year, and said it would: "weld our scattered population into one nation, to foster a sense of unity that will make us a great nation."

The sociological advantages have not been the only ones brought to light. The advantages to the television and radio industries, and to computer users through increased capability for data transmission have met a more scathing reception.

Whatever the validity of the speculation over just who will benefit the most, the satellite will now go ahead and continue to make headlines.

It is popular to attribute technological advance to the silicon chip, no matter what shape, form or application that advance may take.

Satellite technology, in common with a vast proportion of innovations we will see in the years to come, will of course use the famous chip in some shape and form, but the idea behind it is not an invention of the 70s, or even the 80s.

BLUEPRINT

The first commercial satellite was introduced in 1965, the Intelsat 1, but the theory of a working satellite communication system had been in

existence for more than 20 years before that project was started.

The blueprint for a satellite system was sold for the price of a story in a radio buffs' magazine, and adopted successfully, almost totally without alteration many years later.

It was inevitable, given the population spread in this country, and the increased expectations of communications, that a domestic satellite would be considered.

The Australian satellite has become a matter of enormous interest on a number of separate fronts. In a country with so many remote areas without sophisticated telecommunication links, the prospects it promises are exciting.

To the taxpaying community which has been told that more than \$200 million will be spent on a domestic satellite, it has emerged as a matter of some concern and confusion.

But for the suppliers of satellites to the world market, such as the Canadian and French

Government-backed entrepreneurs who do not see a business popping up every day it has been a hot area for marketing.

In Australia last year one aspect of the advantages of a domestic satellite was demonstrated when the Canadian Government embarked on one of the most remarkable marketing exercises ever seen in this country.

Its Hermes satellite was moved slightly from its usual position in the Canadian sky so it could be actively used in Australia for a demonstration run.

It was by this means that people in many areas of outback Australia saw television for the first time in their home-towns, courtesy of Hermes.

FAVORITE

The Canadians were regarded as front-runners, even before the Hermes exercise, which appeared to cap the issue.

That position as hot favorite for the contract was considerably diminished when in December it was revealed that Hermes had failed.

Even though it had been in operation for four years, rather than the original two years for which it was scheduled, the Canadians had lost their exceptionally strong foot-hold.

The failure occurred during crucial tests of its effectiveness in the heavy rainfall areas of Northern Queensland, opening up the way for the European Space Agency, and the contractor for its OTS satellite, British Aerospace to

attempt to emulate the tests.

The technology as it will be exercised when a satellite is acquired will extend far beyond the pleasures of better television, and telephone links for more people.

It will also represent a bold advance for those involved in the area of data transmission for the business world. It will effectively remove barriers that have existed for trans-continental communication between computers.

Satellites have been described as part of the highway of the sky which when integrated with a network of land wires, cables, high frequency radio links, microwave networks and data networks, link terminals, whether they be computers or telephone receivers.

French Bid Reported

Canberra THE AUSTRALIAN in English 16 Apr 80, Supp., p 4

[Report from Lucien Roz]

[Text]

FRANCE's highly advanced space industry is not well known here although French aircraft have become familiar to Australians - Mirage, Alouette, Mystere, Airbus are now familiar names.

But if the present bid by the French to have a hand in the development and operation of Australia's proposed domestic satellite is successful, we could be hearing much more about their space technology.

French ambitions to make its technology available to Australia for the satellite development have been underlined by the visits of French specialists and consultants in August and December, 1979 and March this year.

The visitors were from Satel Conseil, a French consultancy firm dealing with the engineering of communications satellites.

This firm believes it can offer the Australian project team technical assistance in project management, contract monitoring, quality control, systems check-out, launching and position-

ing of the satellite and related matters.

Satel Conseil has been associated with the Ariance launch vehicle program on behalf of the European Space Agency and with development of more than 25 scientific, technology or applications satellites.

The French firm has experience in the installation and commissioning of earth stations, operational commissioning, staff training and technology transfer.

Apart from Satel Conseil, the CNES together with Aerospatiale, Thomson-CSF and Matra, are prepared to offer comprehensive

technical research, with a realistic industrial and commercial base.

The key to the success of any space program is the launch vehicle.

In Ariane the French and their European partners have a powerful launch rocket, the LO1 model which was successfully launched on December 24, 1979 with flight results reported as

normal for all systems and subsystems.

A further three flight tests are planned for 1980.

Late in May, the first of these flights will launch the German Firewheel scientific satellite, together with the Ansat radio-amateur satellite.

In September, Ariane LO3 will orbit the Apple,

an Indian communications satellite, and the second flight unit of Meteosat, the European Space Agency meteorological satellite.

The Ariane qualification phase will conclude with the LO4 vehicle, to be launched in December 1980. It will orbit the ESA Marecs A, maritime communications satellite.

Warning on Costs

From THE WEST AUSTRALIAN in English 2 May 80 p 3

[Text]

MELBOURNE: Australia's two major communications unions yesterday warned that the Federal Government's proposed communications satellite could face escalating costs.

The Australian Postal and Telecommunications Union and the Australian Telecommunications Employees' Association both believe that more than \$200 million of taxpayers' money may be invested disastrously.

At a joint news conference the union secretaries, Mr George Slater and Mr Bill Mansfield, said that not enough study had been done to cost the project accurately.

Mr Slater said that the cost might well rise to \$1000 million.

June Tender Call

Canberra THE AUSTRALIAN in English 17 Apr 80 p 11

[Report from Bill West.]

[Text]

TENDERS for an Australian satellite system will open from June until October, the Department of Post and Telecommunications announced yesterday.

But a decision on the final shape of the national communications network will not be made for at least 12 months.

Preliminary planning aims for the satellite system were presented to private companies in Sydney at the opening of a three-day briefing for industry.

The briefing by the Department of Post and Telecommunications involved officials from the Department of Administrative Services, the Department of Productivity, the Satellite Planning and Development Group, Telecom and the ABC.

Representatives from electronics and communications firms from around the world were told a heavy emphasis would be placed on Australian industry content.

A Department of Productivity spokesman.

Mr Dennis Murphy dismissed a suggestion that the major share would go to overseas companies while Australian industry was left "scrambling for the crumbs".

"If suppliers want to be successful in this project, they must give Australian industry a piece of the action," Mr Murphy said.

Initial plans to set up a national satellite system at an estimated cost of \$210 million were announced in Parliament in October.

It is anticipated the project will involve at least three spacecraft but further satellites could be required, depending on the class of spacecraft chosen.

For "homestead and community broadcasting satellite services", Australia is to be divided into five main service areas - Western Australia, South Australia, the Northern Territory, Queensland and NSW-Victoria-Tasmania combined.

Each service area will be capable of transmitting one television program with associated sound and three sound programs - two mono and one stereo.

Minister Staley's Remarks

Perth THE WEST AUSTRALIAN in English 10 May 80 p 23

[Text] The Federal Government is moving ahead rapidly with its plans for a domestic communications satellite.

The Federal Minister for Post and Telecommunications, Mr Staley, said in Perth yesterday that contractual tenders for the satellite would open at the end of next month.

He expected the tenders to close about the end of the year.

The project, which will bring telephone, television and radio services to hundreds of thousands of people in remote areas, was announced in October. It will also have a role in the transmission

of business information, transport safety communication services and meteorological and scientific data.

Mr Staley said yesterday that the decision to call tenders did not mean that all the potential use of the satellite had been decided.

Basic use requirements would have to be clear by the end of next month. However, a number of specifications could be varied at later dates.

The satellite project office was in the midst of completing technical specifications.

"We will be calling for tenders for a satellite of which the technology is

well known," Mr Staley said.

"I believe that we will consider small satellites rather than anything big and cumbersome or expensive, preferring something off the shelf in order to keep the costs down."

SOLAR

Mr Staley said that the first satellite would be solar-powered.

He had no knowledge of any plans for later satellites in the system to be nuclear-powered.

The satellite would enable the people in remote areas to receive three ABC radio channels - one of them FM. People would need a small earth

station to receive the signals.

There had been so much interest from potential users that it appeared that the satellite would be more viable than earlier anticipated.

"We worked out our estimates on a conservative basis and without exaggerating the likely use or any other factors.

"On that basis there was a potential cost to the Government or Government commissions of about \$40 million," he said.

Estimates of the capital cost had been higher than \$200 million.

"There are people within my project office who believe that the thing may entirely pay for itself in the life of the first satellite system," he said.

"I am not going to assume that at this stage, I like the idea that there would be no taxpayers' funding at all—but I am not going to assume it."

SCHOOL

Mr Staley said he believed that the School of the Air could be incorporated in the satellite's programme.

He had held talks with the Isolated Parents and Children's Association about enabling the school to use the satellite's facilities.

It would be possible for people to get access to the satellite's facilities after the system's format was decided.

People would be able to lease transmission time to send data and others could put in earth stations to utilise the facilities.

AUSTRALIA

TELECOM TO INTRODUCE DIGITAL DATA NETWORK IN 1982

Sydney THE SYDNEY MORNING HERALD in English 22 Apr 80 p 24

[Report from Elisabeth Owen in Melbourne]

[Text]

Telecom Australia has brought forward by a year its plans to introduce a digital data network to provide faster connection and restoration times.

This decision follows the availability of proven systems which offer substantial cost savings and increased market opportunities, according to Telecom's general manager for customer services, Mr E. R. Banks.

The pilot network connecting Melbourne, Canberra and Sydney should begin in September next year and a nationwide system at the end of 1982 rather than the end of 1983 as planned.

Details of the networks would be released soon.

Mr Banks told a meeting of the Australian Computer Users' Association that Telecom also aimed to offer a packet-switching service by 1982.

In packet switching, data is sent between source and destination in convenient size segments called packets.

The technique ensures that transmission paths are used very efficiently. It allows high peak data transfer rates, low transit delays and low error rates.

Its overriding advantage is that it provides a framework for data communications between different equipment and uses standard exchange techniques.

Mr Banks said that 14 other countries would be offering packet-switching networks by 1982.

In three or four years, Telecom also expected to introduce a specialised public switched network for communicating word processors. This would be called Teletex.

Mr Banks said that to date, the analogue telephone network had provided the basis for data communication but now there was a need for digital networks and those with switching capability.

Mr Banks said the nature of data communications was changing as organisations restructured their information flows around teleprocessing systems.

Lower computer prices and cheaper communications together with higher labour costs had created a favourable environment for additional teleprocessing applications.

Among other plans, Telecom hoped to lift the maximum transmission speed on the public telephone network from 1,200 bits a second to 4,800 bits a second within a year.

The 4,800 bits a second modem, which coded and decoded information, should be readily available by mid-1980.

The 2,400 bits per second modem should be readily available by early next year.

A back-up facility, known as a switched network adaptor, would be available for use, with both modems.

It would be located between the modem, the leased line and the public switched network.

Two other new applications would be corporate data and message systems and electronic funds transfer.

The first would support the traditional applications of input, processing and output of data transactions as well as newer message applications such as internal correspondence, progress checking and reporting.

Electronic funds transfer would include credit checking, electronic clearance of cheques and debit card operations.

CSO: 5500

IMPROVEMENTS IN TRANSPORT COMMUNICATIONS DETAILED

Canberra THE AUSTRALIAN in English 12 May 80 p 13

[Text]

A REPORT to Federal Parliament on the Australian transport industry has highlighted significant telecommunications activity in the air and maritime navigation fields.

The report details a battery of aviation and shipping projects which have received close attention from the Government in recent years as well as contracts let to private industry for the development of sophisticated communications equipment.

Major suppliers of the high technology equipment used in these fields are the 30-odd member companies of the Australian Telecommunications Development Association which in recent years, have scored major international successes in the development of navigational aids and unique transport communications systems.

Projects covered in the report include the commissioning of new air traffic control towers in several states including Queensland and Victoria and the installation of the Sydney Air Traffic Control digital radio simulator which is nearing completion.

SAFETY

The simulator installation is aimed at enhancing air safety by switching much of the current on-the-job operational Air Traffic Control (ATC) training to the less critical environment of the simulator.

Prepared by the Federal Department of Transport, the report describes the department's progressive modernisation of all its radar display systems in conjunction with the local electronics industry.

These are being upgraded to provide air traffic controllers with additional information to reduce the maintenance load and repair problems.

Work is also proceeding on the introduction of Alpha Numerics into Australian ATC centres.

The report says these will enable ATCs to pinpoint on their radar screens - aircraft identity, actual altitude, assigned altitude and ground speed.

Interim Alpha Numeric Systems are being developed to provide aircraft identity and altitude information for installation in the Sydney, Adelaide and Perth ATC centres.

The seven route surveillance radars (RSR) which track aircraft flying over Australian soil, are also being substantially upgraded with their coverage the modern solid state equipment.

The programmed refurbishment of all route surveillance radar turntables in Australia together with upgrading and conversion of waveguide rotating joints is continuing as well, as are modifications to convert single and double co-axial wave guide rotating joints to triple co-axial versions for all radar installations.

The departmental report to parliament places significant emphasis also on the expansion of Australia's network of non-visual navigation aids.

These now total 438. As well, new instrument landing facilities are now installed at a number of regional airports in NSW, WA and the Northern Territory.

CONTRACT

A contract has also been placed with Australian industry for the development of a new 100-watt non-directional beacon. This is the most common beacon in the

network of non-visual navigational aids.

In the maritime field, the Federal Government has approved in principle a five year plan for modernising and upgrading the coastal navigation aids systems.

The plan includes modernisation of 114 existing aids, the unmanning of seventeen major light stations and the establishment of 44 new visual or radio aid.

These moves are expected to result in important contracts to the local electronics industry which has established an acknowledged reputation in the navigation aids systems.

The report revealed that field evaluation of a prototype Australian made remote monitoring equipment is presently in hand.

Remote monitoring equipment is planned for twenty three unmanned light stations to enable fault reporting to five regional master stations using the Telecom STD network.

The department has also acquired eleven solar powered systems to operate ten remotely sited, low power wind information units and a radio communications facility.

The solar systems are planned for installation at Ayers Rock (NT); Aldinga, Monarto South, Two Wells, Goolwa and Moomba (SA); Cardinia (Vic); Scheyville, Holsworthy and Bringelly (NSW) for wind information recording equipment and at Woolpunda (SA), a 120 watt system will power a VHP communications unit.

According to the department, increasing costs of liquid fuels required for conventional

diesel generating plants has resulted in solar and gas powered supply systems becoming a more economic solution for low-power facilities, and investigations are continuing into the greater use of these types of power generators.

CONVERSION

Conversion of the departments existing multi-channel radio bearer system in the 400-470 MHz band to higher frequencies to release the spectrum for mobile purposes is expected to be completed by 1984.

Special interface equipment has been designed to enable standard telecom private land lines between adjacent Air Traffic Service (ATS) centres to be used for inter-centre communications and reliable ground control of remote very high frequency (VHF) air-ground communications.

Construction continues also on the Omega long range radio-navigation facility at Oppaland in Victoria.

This highly sophisticated telecommunications facility will enable ships and aircraft of all nations to determine their position in almost any part of the world at any time, and in any weather.

Omega will have an antenna tower of 427 metres. At present, there are seven communications stations of this nature in various countries.

The Australian centre will complete the network of eight stations giving complete global coverage to marine and air communications needs.

AUSTRALIA

BRIEFS

TELEVISION TO REMOTE AREAS--Canberra.--The remote areas of Andamooka, Coober Pedy and Marree in South Australia will have television earth stations during 1980-1981, post and telecommunications minister Tony Staley said yesterday. [Text] [Brisbane THE COURIER-MAIL in English 15 May 80 p 30] Derby, Broome and Exmouth will receive telecasts in October using the new earth receiving stations. The Federal Member for Kalgoorlie, Mr Cotter, said the television signal would be the normal ABC Channel 2 programmes beamed by Intelsat satellite and picked up by the earth stations in remote areas. Mr Cotter said that TV services for other centres would follow quickly. The 1981/82 programme provided for telecasts to Wyndham, Kununurra, Halls Creek, Marble Bar, Onslow, Eneabba, Leeman, Jurien Bay, Meekatharra, Cue and Mount Magnet. These centres, which would be serviced by earth stations, had not been given a firm commencement date. [Text] [Perth THE WEST AUSTRALIAN in English 8 May 80, Supp., p 2]

CABLE TELEVISION ANNOUNCED--Melbourne: The Federal Government will announce within the next few weeks the introduction of a new system of television in Australia. The Minister for Post and Telecommunications, Mr Staley, said yesterday that the new system, [known] in America as cable TV, could create thousands of jobs in Australia. The proposal meant exciting possibilities for communication. However, if the Government went ahead with cable television it would take a long time before construction would start because of the Government's policy on the licensing and operation of the stations. [Excerpts] [Perth THE WEST AUSTRALIAN in English 14 May 80 p 4]

CANBERRA TELEVISION TOWER--Telecom's commanding new tower on the top of Black Mountain in Canberra is to be opened this month despite opposition from flying bull-ants to court battles with conservationists. The tower, which cost more than \$16.5 million, has been progressively taking over Canberra's telecommunications needs, including television and FM radio broadcasting, since last December. The height of the tower is 195.2m. The Prime Minister will officially open the tower on May 15. [Excerpts] [Canberra THE AUSTRALIAN in English 6 May 80 p 2]

INTELSAT MEETING--About 100 delegates from 50 countries are attending a six-day conference which began in Sydney yesterday on earth stations using the Intelsat telecommunications satellite system around the Indian and the Pacific Oceans. A spokesman for the Overseas Telecommunications Commission said yester-

day such meetings were an essential ingredient in the continued smooth operation of the worldwide telecommunications satellite system. At present more than half Australia's overseas telecommunications traffic is transmitted via the 832 Intelsat circuits used by OTC. Australia's current interest lies in the operation of OTC's new Intelsat standard earth station at Ceduna, South Australia. [Excerpts] [Melbourne THE AGE in English 23 Apr 80 p 29]

HOLOGRAM RECEIVER PLANNED--A microwave hologram receiver to be built at Wollongong University will be the first in Australia. Dr Frank Paoloni, of the university's electrical engineering department, has been awarded a \$1600 grant from the Radio Research Board to assist with the cost of building the receiver. Dr Paoloni will use the new receiver mainly to diagnose three-dimensional objects for remote sensing, analysis of antennae and pattern recognition. He said the receiver also has a long-term medical application. [Excerpts] [Canberra THE AUSTRALIAN in English 21 Apr 80 p 8]

NORTHERN TELEPHONE SERVICES--The WA Government will push for an earlier satellite link for some Kimberley telephone services. The honorary Minister for Regional Administration and the North-West, Mr Ian Laurance, said yesterday that it was feasible for Intelsat to be used this year. It was intolerable that some of WA's most isolated communities should be expected to do without reliable communications. He had been advised that Intelsat could be used for telephone communications as well as for television services in remote areas. He would ask the Federal Minister for Post and Telecommunications, Mr Staley, to investigate the use of Intelsat at least to points serving Broome, Derby, Wyndham and Kunumurra as an interim measure. [Excerpts] [Perth THE WEST AUSTRALIAN in English 16 Apr 80 p 39]

MINISTER GIVES DETAILS OF PLANNED SATELLITE STATION

Dacca THE BANGLADESH TIMES in English 18 Apr 80 p 1

[Text] The country will have a new ground satellite station at Kaliakoir near the capital within a year enhancing its telecommunication links with the world.

Posts, Telegraphs and Telephones Minister Mr Mayeedul Islam told THE BANGLADESH TIMES that the new ground station--the second in the country--would be linked to a B-type communication satellite.

The existing ground station at Betbunia will be modified to attune it to a new satellite due to be launched by the INTELSAT to replace the present orbiting one which is to 'expire' shortly.

The ground station at Kaliakoir will cost about four and a half crore taka. Negotiations are continuing with donor countries including Canada, France and Japan. A tender for the project will be floated by next month.

The modification of the Betbunia station will cost about one crore 20 lakh taka.

Mr Islam said that during the modification Bangladesh's satellite communication links with the rest of the world would continue. After the modification both the ground stations would function simultaneously in Betbunia, with a A-type satellite and Kaliakoir, with a B-type satellite, he added.

With Dacca's links to two types of satellites the country will be directly connected with all the important capitals of the world.

There will be new microwave link between Dacca and Betbunia while the two existing links will also be replaced. The microwave links between the northern districts and the capital will be strengthened by adding a third bearer.

The T&T Minister said that apart from enhancing telecommunication links of the capital with the rest of the country, these will improve television reception all over the country.

Mr Islam said that a coaxial cable connection between Dacca and Chittagong-- a project shelved during the Pakistani day's--had been taken up and would be completed soon.

The cable link will serve as an alternative system of communication between the capital and the port city when the microwave links are disrupted due to weather and climatic disturbances or mechanical failures.

CSO: 5500

SATELLITE SYSTEM TO BE IN OPERATION BY 1982

New Delhi PATRIOT in English 14 Apr 80 p 5

[Text]

PUNE, April 13 (UNI).
COMMUNICATIONS Minister C M Stephen has envisaged radical changes in the telecommunication services in the country with the coming into operation of the Indian National Satellite System.

Talking to newsmen at the Telephone Bhavan here today, he said the work on the INSAT-I system was going apace as per schedule and it would be fully operational by 1982.

He said under the new system, telephone circuits would have potential access to even the remotest part of the country.

It would eliminate the hazards of the existing communications network as the reliability, flexibility and adaptability of INSAT telecommunications. Circuits would be far superior to those of terrestrial facilities.

Mr Stephen said out of the three satellites, two would be launched by March, 1982 and this would connect India with 29 countries in the Indian, Atlantic and Pacific Ocean areas, adds PTL.

PHONE CONNECTIONS

Mr Stephen said with a 12 per

cent increase in the demand for new telephone connections over the existing 1.10 lakh connection, the telephone system was hard-pressed to meet the requirement. Besides the department was also faced with the problem of taking telephones to rural areas.

To meet these challenges a new electronic system was being developed by expansion of plants for manufacture of communications equipment at Palghat in Kerala and in Delhi.

This would be coupled with the continuance of production of co-axial and cross bar systems, Mr Stephen said.

He said out of the 50 lakh villages in the country 34 lakhs had already been converted under regular post offices and plans were afoot to cover the remaining over one lakh villages by making the services accessible within three miles radius of the villages.

In this connection, the mobile post offices target was being met. The Ministry was also thinking in terms of introducing mobile telephone exchanges with the help of electronic containers which would be imported in due course, Mr Stephen said.

NEW RANGE OF COMMUNICATIONS EQUIPMENT PRODUCED

Madras THE HINDU in English 23 Apr 80 p 17

[Article by N. N. Sachitanand: "New Range of Telecom Equipment from BEL"]

[Text]

The manufacture of telecommunication equipment in India, is virtually a Government monopoly with the public sector corporations, Bharat Electronics Limited (BEL) and Indian Telephone Industries (ITI) accounting for most of the production. The basic trend in Indian hardware design is towards modularisation, increased use of third generation solid state devices, enlargement of frequency ranges and number of channels, more compactness, higher output power, denser information packing and changeover from analog to digital transmission.

Bharat Electronics Ltd. (BEL) specialises in the manufacture of military communication hardware. Besides catering to the entire wireless communication requirements of the Army, BEL is also making some equipment for the ground-based part of the Air Force communication network. The Navy is currently in the process of switching over fully to BEL equipment for ship-to-ship, ship-to-shore and ship-to-air communications. Only ship-to-satellite communication equipment has still to be imported.

BEL is also meeting the requirements of the police wireless communications systems ranging from light-weight, portable, hand-held transceivers to State-wide two GHz microwave networks. BEL has also supplied special, custom-built communication equipment and networks in the UHF and microwave range for the Civil Aviation Department, Indian Oil Corporation, Posts & Telegraphs Department, Railways, Overseas Communication Services and others.

Given below are some of the new items of telecommunication equipment developed recently at BEL.

MF AND HF RANGE

(1) A family of MF transmitters ranging from 100 W to 400 W output based on a 100 W power amplifier module has been developed for use by the Civil Aviation Department (CAD), lighthouse, merchant marine and the Indian Navy. These transmitters have facilities for transmission of codes and distress signals, as well as for telegraphic communication. The CAD has already conducted trials on a prototype of the 200 W beacon.

2) A range of HF transmitters with outputs from 100 W to 20 KW are being developed. The design approach is to use solid state circuitry and common modules in a building block configuration.

One of them is the 800W/1KW HF transmitter, realised as combinations of a basic 125 W module, meant for the Army and Air Force. The frequency range is 1.5 to 30 MHz and the operating frequency, which is synthesiser controlled, can be set in 100 Hz steps. The transmitter provides CW telegraphy, telephony (SSB with suppressed, reduced or full carrier and LSB) and teleprinter communication facilities. Broadband techniques are employed throughout, including the high power stages, to eliminate amplifier tuning operations. Production of this item was taken up in 1979-80.

3) A 300 W HF transmitter, fully solid state except for the final transmitting tube, has been developed for the OCS and the Navy.

This is an updated redesign of the old tube version Thomson CSF 20 KW transmitters made by BEL in the '60s.

4) A 15 W HF transmitter, fully solid state and using COS/MOS integrated circuits has been designed as a replacement of the decade-old valve version. Having a frequency range of two to 30 MHz, it has 20,000 channels in one kHz increments and a digital synthesiser control is employed to achieve a high level of frequency stability.

5) A 100 W Fixed Channel Transmitter/Receiver has been designed as a general purpose desk top equipment for providing SSB voice, telegraph and teleprinter (with adaptor) communication in six pre-selected crystal controlled channels in the frequency range of two to 31 MHz. Frequency stability of a high order (+ 3 ppm) is achieved in this set by the use of proportional controlled even circuits for the crystal oscillators. A remote control unit for operation from a maximum distance of 20 km. and a teleprinter control unit are available as accessories.

6) A fully solid state communication receiver has been designed to receive all modes of transmissions in the HF band of 1.5 to 30 MHz. The frequency range can be extended down to 15 kHz with LF plug-in modules. The receiver employs a synthesiser as local oscillator, which is a continuously tunable stable LC oscillator referenced to a highly stable internal frequency standard. A three-step frequency setting (hand set, coarse tuning and fine tuning)

provides quick access to the desired frequency. The frequency of the local oscillator is continuously indicated on a seven-digit LED display to the last 10 Hz step. This design replaces the old valve set being made by BEL under licence from Siemens and is meant for the Army and Navy. Its production has just commenced.

VHF RANGE

(1) A VHF transceiver, with a range of three km. and a power output of 0.5 W across 50 Ohms weighing only 3.6 kg (including slinging accessories) has been designed for manpack operations for the Army. It operates in the frequency range of 35 MHz to 84.975 MHz and provides FM voice communication in 500 channels at 25 kHz intervals.

The use of latest micro-electronic techniques, whisper speech facility, tone-operated squinch circuit and built-in battery state indicator are the salient features of this set. Production has commenced last year at the Ghaziabad factory of BEL.

Another series of VHF manpack sets have been designed for the police. These are two W, four channel phase-modulated sets provided with "Selective Calling with Watch" and rebroadcast facilities.

(2) BEL has recently developed a Dual VHF Omnidirectional Radio Range (VOR) which is a ground-based transmitter radiating radial data signals enabling an aircraft to determine its azimuth bearing, relative to the ground station. The VOR radiates a composite signal which is a radio frequency (108 to 118 MHz) carrier containing two modulation components. One of these is the reference signal. The other is a signal with variable phase in the azimuth generated by a digital goniometer. Each component radiates in a horizontally polarized mode from cylindrically slotted antennas. Phase comparison of the two modulation components yields the azimuth bearing. The VOR transmits periodically, a keyed tone giving the station identification code. Voice broadcasts can also be done over the VOR.

Funds for the development of this system were provided by the

Department of Electronics and two models have already been provided for trials.

(3) BEL has recently taken on hand the development of the ground-based portion of the Distance Measuring Equipment (DME) which is an aircraft navigational aid, enabling the pilot to determine his slant range from a ground station. The airborne part of the DME consists of an interrogating transceiver. The ground-based portion is a transponder, which receives the interrogation signal and transmits a pair of pulses after a preset delay at RF frequency of the interrogating receiver on board the aircraft. This timing information is decoded in the airborne receiver to yield slant range and also the identity of the transponder. This development is also funded by the Department of Electronics.

UHF RANGE

(1) A general purpose UHF transmitter-receiver working in the frequency range 225-400 MHz, tunable in steps of 25 kHz (giving 7,000 channels) is now undergoing sea trials with the Indian Navy. The fully solid state system incorporates a memory circuit for preset channel selection facility, upto 30 channels, anywhere in the band. All tuning controls are eliminated through command voltages derived from the fully digital synthesiser. It provides for single channel AM and FM modes of operation and has optional digital security in the FM mode of operation. Its power output is 30 W and it can be used as either a shipborne or shore station.

(2) BEL was manufacturing a UHF radio relay in the 610-960 MHz band in collaboration with Siemens. Now a modern, solid state version has been designed to replace the Siemens model with its valve amplifier. The system is designed for transmitting and receiving, by beam radiation, signals supplied by a four to 24 channel carrier equipment employing Frequency Division Multiplexing (FDM) or a six to 24 channel Time Division Multiplexer (TDM) using Pulse Code Modulation (PCM). An Audio Frequency (AF) service channel is also pro-

vided. The system covers the bands 225 to 400 MHz and 610 to 960 MHz with channel spacing 125 kHz apart.

The development of the system to cover the 1,400-1,700 MHz band width, is now in an advanced stage.

MICROWAVE RANGE

(1) A four GHz broadband radio relay capable of handling 1,000 telephone channels or one TV plus four sound channels has been developed for application on P&T trunk routes and in TV programme-feeder links. This project has been undertaken in collaboration with the Telecommunications Research Centre (TRC), New Delhi, and the first system has been installed on the hop route between Jambhedpur and Hazaribagh.

The design is fully solid state, using 2 GHz transistors in the power stage, instead of the conventional Travelling Wave Tube.

(2) BEL has also recently developed a series of multi-channel microwave radio equipment in the 2 GHz (static station) and 3 GHz (mobile station) range, which use line-of-sight, diffraction and tropospheric scatter modes of propagation, with appropriate transmitter outputs. While the equipment has been primarily designed for the ground network of the Air Defence system, a 60-channel version of the two GHz radio relay equipment has been used for the BEL designed microwave communication network of Tamil Nadu.

(3) BEL is now working on a 7 GHz narrow band radio relay for the Indian Railways for their Wadi-Guntakal route. This system will be simpler than the four GHz relay for the P&T. IF modulation will be dispensed with and the baseband will directly modulate the RF. The equipment will carry 960 FDM channels and will have a power output of 1 W. Repeaters will be of baseband type.

(4) BEL has also developed Voice Frequency Telegraphy equipment of 12 channel capacity which can be used to carry a number of teletype signals over a voice channel.

MANUFACTURER EXAMINES STATE OF COMPONENTS INDUSTRY

Calcutta THE STATESMAN in English 25 Apr 80 pp 11, 12

[Article by S. Pandit, chairman, Radio, Electronic and Television Manufacturers Association]

[Text] Need for rural change has acquired great importance today, and is being backed by a lot of political will and Plan inputs. However, it has to be recognized that it will not be possible to bring about a transformation only through financial inputs. The dynamics of change require a massive communications thrust in order to elicit the common man's participation in the national plans.

With very low literacy levels in rural areas, radio and TV are the most effective media of mass communication. The position of radio has to be also viewed in the light of the fact that large funds from the public exchequer have already been invested in setting up broadcasting services which now cover the length and breadth of the country. Unfortunately, even in these two items the production levels are still small as the number of radios and TVs produced are 4.5 million and 0.3 million respectively.

Only a decade back motivated by UNESCO recommendations, the radio industry in India entertained the vision of radio in every home. This meant a population of approximately 100 million radios by the end of 1970's with an annual production of 10 million sets sustained by a big replacement market, a viable components base, reasonable cost price, a good position in exports and a large network of ancillary units. These hopes were sustained during the last four years of the sixties as the industry made a jump from a production level of one million sets per annum to 3 million sets per annum by 1970. Thereafter, disappointingly, a stagnation set in due mainly to high prices.

One of the most important reasons for this stagnation has been the components base which is expensive, quantitatively inadequate and by and large qualitatively outmoded. Shortage of components is a permanent feature. This is the area where indeed hard and urgent decisions are required in order to establish economically and technically viable units not only

representing the latest in design technology and manufacturing techniques but also possessing full agility to keep abreast of the rather fast rate of obsolescence.

It is necessary to delve a bit deeper into the area of obsolescence which is the most important technical character of the electronics business. The components industry cannot be built in technical or commercial isolation. It has to move in step with the international trend. On a global basis consumer electronics are subjected to trends that continuously tend to change. These trends exercise a constant obsolescence pressure on the components. First of all, the styling-based components tend to change with the styling itself. Secondly, the styling sometimes also changes the geometry of even nonstyling components, which in turn changes the materials and processes.

Thirdly, due to severe competition in the international market the equipment are under a tremendous cost pressure which results in changes in automation levels, manufacturing techniques and processes, thereby once again disturbing the position of components. Fourthly, by themselves also components are under cost pressure and as such was subjected to change in materials and processes. As if all this was not enough the fast rate of change in certain active components like ICs (LSI) tends to influence the fortunes of passive components, which makes the entire components business dangerously risky in the hands of people other than thorough professionals having full arrangements to be in step with international trends, vis-a-vis products, materials, machines, processes and skills.

One compulsion of this situation has to be appreciated, that it is not possible for India to choose its own speed of change. Firstly, the whole idea of building isolated electronics for India may be ridiculous to say the least, and secondly, India will not go far in electronics without a proper share in world trade through its exports. For exports it is not just enough for India to provide equipment with required specifications and performance characteristics; it will also be necessary to ensure interchangeability of components, without which the foreign buyers will not touch the equipment with even a barge pole. Hence, it is not only a question of being fully in step, it is also a question of a reputation to continue to be in step without loss of time. The size, stature and speed of change of Indian electronic equipment as existing at present, is a serious handicap for Indian electronics industries' credibility abroad.

The following conclusions emerge from this analysis:

--There is no running away from conducting on a war footing a competent professional study of the appropriate techno-economic levels of components industry. This industry may be too risky for small scale operations.

--There is need for constant technical interaction or even tie-up with leading manufacturers in the world.

--For a period of time, import of technology will have to be very freely permitted.

--The manufacturers of components must have a reasonable blanket permit for the importation of technical information and drawings pertaining to product design, manufacturing processes, equipment, tools, jigs and fixtures. Frequent changes and adjustments in these abroad, will not permit the delays that licensing procedure causes, even in respect of import of smaller magnitudes.

Our approach to an understanding of the nature of technical know-how has to also undergo a change because a constant inflow and continuous purchase of technical information does not necessarily mean that we do not have a technical capability of our own. In fact, the basic competence of the Indian units is the only guarantee of translating information into action and drawings into products. As it is, the ability to keep abreast of the world situation through inflow of technical information by itself signifies a maturing technical base in the country.

The rate of change in the world market naturally indicates the magnitude of R&D work not only in the field of components and equipment, but also in materials and manufacturing processes which is of utmost importance to a country like India trying to catch up with industrially advanced countries. Unfortunately, the word seems to have gone around in the country that entertainment electronics is a poor relation to the high and mighty house of professional electronics. In such an environment, the young and upcoming scientists can hardly feel proud of taking up challenging research and development jobs, R&D in this field requires greater enthusiasm and better thrust and patronage.

Developments such as the DOLBY system for Hi-Fi reproduction and double super heterodyne principle for radio and TV are not yet engaging the attention of research scientists. Even in the field of industrial design there is much left to be desired. A vibrant industrial design activity which is very vital to the growth of consumer electronics industry is seen only at places few and far between and has not taken its roots at all. Lack of this activity is in fact an index of backwardness in this vital field and a patch-work approach is not likely to establish our rightful place in the vast growing international market.

Division of work between small-scale and organized sectors is of paramount importance in India for obvious reasons. The two sectors are complementary, with a dynamic balance between the two though this issue has been often confused. Let us first take the small-scale sector. It has come to stay; it is a reality of the Indian socioeconomic life. At the same time, as far as electronics products are concerned, the role of the brand name has been exaggerated unnecessarily. Brand name alone does not guarantee sales, as will be seen from the fact that during the last few years some of the world's best brand names in radios have gone out of business

in India. The truth is that behind any brand name lies an organization which is the sine qua non of success. It is lack of recognition of this basic fact that has confused the issue. As nobody in the organized sector can wish away the small-scale, the small-scale cannot also easily wish away a structural base which, of course, cannot be provided by any dose of protection from the government.

The industry as a whole has to solve some of the other problems. For example, a marketing outfit for demand forecasts, product conceptualization, industrial design product mix, pricing, scientifically worked out stock levels and goods movement, advertising and sales promotion, trained staff and motivated dealership network and service after sales quality at zero hour and long time reliability is inevitable for consumer electronics products. Absence of these facilities cannot be easily covered by financial concessions. At the same time, these facilities mean major inputs which are not only beyond the reach of every small-scale unit but may also be in fact unnecessary to be proliferated. There are definite possibilities of working out a system of rationalized division of labour within the industry, provided the industry wishes and shows the will to learn the art of solving its own problems by itself.

Marketing is a scarce technology in India and marketing interaction between the small and large sectors is a feature that will strengthen both. If the real growth potential is to be realized any one of the two sectors by itself will definitely fail to provide the required industrial and marketing infrastructure. Only the two together can do the trick.

We are passing through a critical period for entertainment electronics. Steps taken now will determine its course in the 1980s. It can be a limping stagnation or a vibrant alive and kicking industry looking forward to its rightful place in the country and the world.

CSO: 5500

BRIEFS

URDU NEWS BROADCAST--New Delhi, April 24.--The Information and Broadcasting Minister, Mr Vasant Sathe, has ordered that a five-minute Urdu news bulletin be broadcast by the Lucknow station of All India Radio, reports PTI. This follows a meeting Mr Sunit Vyas, the Uttar Pradesh Congress(I) leader, had with Mr Sathe yesterday at which he had urged the necessity of an Urdu news bulletin. Mr Vyas said the Lucknow station was at present broadcasting programmes in Urdu for 20 minutes. [Text] [Calcutta THE STATESMAN in English 25 Apr 80 p 15]

PANEL ON COMMUNICATIONS--The Government has constituted the consultative committee of members of Parliament for the Ministry of Communications with Mr C.M. Stephen Minister of Communications as Chairman. There are 19 members from the Lok Sabha and five from the Rajya Sabha in it, reports UNI. The members are: (Lok Sabha) Messrs Bhoys Reshma Motiram, Narain Chand Parashar, Sunil Battacharya, M. Kandaswamy, Ram Awadh, Manohar Lal Saini, Bheekha Bahi, Oscar Fernandes, Vijay Kumar Yadav, K.A. Swami, C.D. Patel, D.K. Naikar, Chhote Lal Uike, Fetejbhan Singh Chauhan, Brijendra Pal Singh, Gireraj Singh Chintamani Jena, Mrs Kailash Pati, and T. Damodar Reddy. (Rajya Sabha) Messrs A.P. Chakraborty, G.K. Moopanar, J.K.P.N. Singh, Mrs Usha Malhotra, and Shiarifuddin Shariq. Minister of State for Parliamentary Affairs Sitaram Kesri and Minister of State for Parliamentary Affairs and Home Affairs P. Venkatasubbaiah, will be ex-officio members of the committee. [Text] [New Delhi PATRIOT in English 24 Apr 80 p 5]

CSO: 5500

BRIEFS

TELEVISION RELAY STATIONS--Minister of Defense and Security General Mohammad Jusuf on 18 May inaugurated three television relay stations in three subdistricts in West Kalimantan. With the inauguration of the relay stations, people living along the West Kalimantan border areas will now be able to enjoy television programs broadcast directly from Jakarta. The relay stations are at Sanggauledo subdistrict for people living in the western part, Balaikarangan subdistrict for people living in the central part and Semitau subdistrict for people living in the eastern part of the border areas. [BK201203 Jakarta Domestic Service in Indonesian 1500 GMT 18 May 80 BK]

TELECOMMUNICATIONS EXTENSION PLAN--Bandung, 23 May (ANTARA)--Perum Telekomunikasi, Indonesia's telecommunications corporation, has taken steps to realise a plan to extend its networks to rural areas. The first step to be taken is to explore the possible areas to get priority for the plan, Dr Musyafri Effendi, spokesman of the corporation said here on 21 May. The main program of the telecommunications corporation is to be realised in the Third 5-Year Plan, he added. Under the plan, remote areas and transmigration centres in various parts of Indonesia will have telephone and other communication facilities. Perum Telekomunikasi will install 7,000 phone units in rural areas. For this, the corporation has installed 75 small ground stations with 200 mini-exchanges through the country. Effendi was convinced that the plan would be completed in the Third 5-Year Development Plan. Ten small ground stations have been built in the northern part of Sumatra, namely at Bagan Siapi-api, Meulaboh, Takengon, Sinabang, Tapaktuan, Blangpidi, Kutacane, Blangkajeren and Lhoksukon, he said. [Text] [BK281449 Jakarta ANTARA in English 0712 GMT 23 May 80 BK]

'ANTARA' TELEX NETWORK--Jakarta, 6 Jun (ANTARA)--Acting Governor of Riau Province Sjarifodin Lubis Thursday [5 June] inaugurated a branch office and telex installation of the ANTARA News Agency in Pekanbaru, the provincial capital. With this latest addition to the ANTARA system, in all 14 provincial capitals have been linked to the ANTARA telecommunication telex network. On May 29 ANTARA telex units were officially opened by ANTARA general manager August Marpaung at the ANTARA branch offices of Banda Aceh and Jayapura (in Irian Jaya). The other capitals until then linked up into the system were Medan, Padang, Bandung, Yogyakarta, Semarang, Surabaya, Banjarmasin, Mataram, Palu, Ujungpandang and Ambon. [Text] [Jakarta ANTARA in English 0707 GMT 6 Jun 80 BK]

POLICE AGENCY CONDUCTS SATELLITE COMMUNICATIONS TEST

OW101253 Tokyo KYODO in English 1238 GMT 10 Jun 80

[Text] Tokyo June 10 KYODO--The National Police Agency started an experiment Tuesday on setting up a telecommunications network via the stationary satellite Sakura (Cherry Tree) launched two years ago.

The agency plans in the experiment to send radio waves carrying voice and television pictures from a mobile station on the ground and receive them at the NPA headquarters in Tokyo.

An NPA spokesman said whether the yen 180 million experiment succeeds depends on how small the antenna, the battery and other equipment of the station, now weighing about four tons, can be made to allow the station adequate mobility.

He said the NPA could monitor natural disasters, demonstrations and rallies in other parts of the country if the experiment proves practical.

"It's an epochmaking experiment in the history of the Japanese police organization," an NPA official said. He added that the new system can back up the conventional telecommunications network using ground-to-ground radio stations vulnerable to natural disasters such as earthquake and typhoon.

In the nine-month experiment, the mobile station travels to Sapporo, Shizuoka, Osaka and Fukuoka, according to the spokesman.

The Sakura, set off by the National Space Development Agency, is 36,000 kilometers above the central Pacific.

CSO: 5500

MONGOLIA

BRIEFS

COMMUNICATIONS CONSTRUCTION--Ulaanbaatar, 12 Jun--Construction of complex radio and television projects, which is being done gratuitously in the MPR by Soviet specialists, plays a major role in establishing a unified communications network in the country. Construction of a radio relay line system between Ulaanbaatar, Altay and Olsiy, passing through more than 40 large population centers in seven aymags, is progressing successfully, and several sections are already in operation. Radio relay lines permit simultaneous transmission of radio broadcasts and national and Soviet television to remote aymags, while the capacity of intercity telephone and telegraph communications in aymag centers will increase 10-fold. Soviet television programs are being received in large population centers with the aid of the "Ekran" system. [OW130536 Ulaanbaatar MONTSAME in Russian 1829 GMT 12 Jun 80 OW]

CSO: 5500

'MICROWAVE NETWORK' JOURNAL INTRODUCED

Beijing WEIBO WANGLUO [MICROWAVE NETWORK] in Chinese Jun 78 pp 1-8

[Journal [compiled by] Lin Weigan [2651 3634 1626]; published by National Defense Industry Press]

[Text] Brief Introduction

This book has 12 chapters. Chapters 1 to 4 give a summary introduction to some of the theorems and concepts and the characteristics of the wave filter, and especially the so-called best properties of the elliptic function wave filter and the method of constructing the wave filter. Chapter 5 to Chapter 8 discuss the theory of small hole coupling in a waveguide and the design of the directional coupler. Chapter 6 discusses band lines and microbands. Chapter 7 discusses the basic theory of ordinary microwave networks. Later chapters separately discuss the impedance converter, wave form converter, power distributor and some basic theories of microwave ranging. Chapter 4 gives a detailed description of the single chamber multiple mode simply combined structures, and Chapter 11 gives a detailed description of the elliptical function wave filter. The book is intended for use by workers in microwave technology, teachers and students of colleges and universities and scientific researchers as reference.

Foreword

Modern radar, communications and electronic warfare technologies utilize microwave technology and theory widely. Because of the development of microwave technology and theory, microwaves of wave sections (above 1,000 megahertz) like low frequency waves are used in the design and the manufacture of various kinds of microwave networks. It is thus possible to effectively improve radar systems, communications systems and electronic warfare technology in the entire electromagnetic frequency spectrum. Therefore the study of microwave networks, i.e. microwave circuitry, has become increasingly important.

This book has 12 chapters. Chapter 1 and Chapter 2 give a summary introduction of some theorems and concepts of the theory of low frequency circuitry

frequently used in microwave networks. The characteristics of the wave filter is presented and an introduction of various approximation methods is given. In particular, an introduction to the so-called best properties of the elliptical function wave filter is given. Chapter 3 and Chapter 4 give a preliminary introduction to the method of constructing a wave filter. Chapter 5 discusses the theory of small hole coupling in waveguides and the method of approximation, and provides the necessary formulas for the directional coupler discussed in Chapter 8. Chapter 5 can be studied immediately following Chapter 2 to gain a basic knowledge for later chapters. Chapter 6 discusses band lines and microbands and introduces the subjects of decomposition and repeated addition of even excitation and odd excitation, and how to handle a system of coupling lines by this method. Chapter 7 discusses the basic theory of ordinary microwave networks. Chapter 8 talks about the directional coupler using the method of decomposition and repeated addition of even and odd excitation. Chapter 9 discusses the impedance converter and the simple wave form converter from the simple method of direct observation to the stricter analytical method. Chapter 10 discusses the power distributor. Chapter 11 discusses the elliptical function wave filter. Chapter 4 has introduced the single chamber multiple mode resonator as a method of realizing the microwave elliptical function wave filter, however, a more detailed description is given here to expound upon the development of the design of the single chamber and multiple mode simply combined structures and the elliptical function wave filter because such electronic equipment requires small size and light weight. In addition, this chapter also discusses elliptical wave filters of wide bands, narrow bands and extremely narrow bands. Chapter 12 presents some basic theory of microwave ranging. Combined with the section in Chapter 7 on directional ranging, a necessary foundation for the further advances in surveying technology is formed.

The material of this book is mainly taken from recent scientific magazines. Some of the material are a summary of our work and practice. The book is written under the guidance and care of the academy's party committee and with the help of comrades of the teaching and research laboratory. But due to the limitations of the author's political level and professional capabilities, there will be some shortcomings and mistakes in the book and it is hoped that readers will point them out and make critical corrections.

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CSO: 5500

SRI LANKA

BRIEFS

SATELLITE STATION PERFORMANCE--Sri Lanka was placed first performance-wise from July to December 1979 out of 176 satellite stations in the world. The satellite earth station at (Pondusuda) has been expanded to 180 international circuits. An Intelsat-5 satellite will be launched over the Indian Ocean and will be operative next year. [BK281555 Colombo International Service in English 1045 GMT 27 May 80 BK]

CSO: 5500

INTERNATIONAL AFFAIRS

CMEA COMPUTER EQUIPMENT SESSION ENDS WITH PROTOCOL

AU151925 Sofia BTA in English 1846 GMT 15 May 80

[Text] Sofia, May 15 (BTA)--"The protocol signed here tonight provides for the further development of specialization and industrial joint production of the socialist community countries in the field of microelectronics and computer manufacturing within the CMEA unified system", said Mr Yakov Ryabov, deputy chairman of the State Planning Committee of the USSR and standing chairman of the intergovernmental commission on cooperation of the socialist countries in computing equipment, to a BTA reporter. "In the result of the signing of this important document trade in this kind of equipment between the socialist countries is expected to reach 17,000 million rubles in the 1981-1985 period. This will create possibility for production of new computer devices, for the improvement of the memory devices on magnet tape and magnet disks, on microprocessor and microelectronic basis", said he. Delegations of Bulgaria, the GDR, Cuba, Poland, Romania, the USSR, Hungary and Czechoslovakia took part in the work of the 21st session of the intergovernmental commission on cooperation of the socialist countries in the field of computer equipment. Questions of the international specialization in the development and production of computer equipment and questions of raising the quality and reliability of computer equipment produced jointly by the socialist countries have been discussed at the session.

CSO: 5500

INTERNATIONAL AFFAIRS

BRIEFS

HUNGARIAN-YUGOSLAVIAN BROADCASTING COOPERATION--Budapest, May 28, MTI--A two-year cooperation work-schedule was signed Wednesday in Budapest by Kalman Kiss, vice-president of Hungarian Radio, and Stojan Dimovski, director-general of Skopje Radio. The document calls for exchanges of the best programs, as well as for a "days of Hungarian Radio" series to be organized by Skopje Radio in 1981--as they did this year--to mark the anniversary of Hungary's liberation. The Yugoslav radio company will play host to a Hungarian Radio delegation at the summer folklore festival of the Balkans and at the autumn musical events in Struga. Guests from Skopje are to arrive in Budapest for the light music olympiad, the art weeks series and the pro musica competition of 1981. [Text] [Budapest MTI in English 1733 GMT 28 May 80 LD]

HUNGARIAN-BULGARIAN TELEVISION COOPERATION--At Miskolc this afternoon, at the 20th television festival, Richard Nagy, Hungarian television president, and Ivan Slavkov, director of Bulgarian television, signed a television cooperation work plan of 3-years' duration. The new work plan includes concrete tasks for further developing cooperation, including prescriptions for exchanges of film crews and staff, as well as the realization of several joint programs. [Text] [LD202334 Budapest Domestic Television in Hungarian 1730 GMT 20 May 80]

GDR-YUGOSLAVIAN TELEVISION AGREEMENT--Belgrade--A protocol was signed on Wednesday between GDR television and RTV Ljubljana of the Slovene Socialist Republic of Yugoslavia on cooperation in 1980-81. The main points involved reciprocal topical reportage and program exchanges. [Text] [East Berlin ADN International Service in German 0835 GMT 22 May 80 LD]

ROMANIAN-GDR TELEVISION PROTOCOL--Alexandru Ionescu, director general of the Romanian Radio Television Station, and Heinrich Adameck, chairman of the State Committee of the GDR Television, today signed in Berlin a working protocol on cooperation in 1980-81 between the television stations of the two countries. [Text] [AU272010 Bucharest Domestic Service in Romanian 1900 GMT 27 May 80]

APPLICATION, DEVELOPMENT OF DIGITAL TRANSMISSION SYSTEM DESCRIBED

Warsaw PRZEGLAD TELEKOMUNIKACYJNY in Polish No 4, Apr 80 pp 122-125

[Excerpt] The TCK 30 system is the basic telephone digital transmission system, under which the digital network in Poland will be developed. This system is the initial base for the PCM [pulse code modulation] systems for increased multiplexing: $30 \times 4 = 120$ channels; $30 \times 4 \times 4 = 480$ channels; $30 \times 4 \times 4 \times 4 = 1,920$ channels. At the same time, this system will be used for the transmission of other information besides telephone information, i.e., for the transmission of data, radio broadcasting, etc. Therefore, the TCK 30 system will undergo continuous development at least in the next 10 to 20 years. A requirement for the development of the system is to continue the technological progress in the production of integrated circuits and other elements. This development is reflected by the modifications and dissemination of the recommendations of the CCITT [International Telegraph and Telephone Committee] and CCMA. In order to apply these recommendations for such matters as the improvement of certain parameters of the system, a new version of the multichannel terminal system designated as the TCK 30/M was developed at the "Telkom-Telettra" Wielkopolskie Tele-electronics Plants. The next major phase in the development of the system will be the application of coder-decoder and channel-filter integrated circuits which are currently accessible in western markets; these circuits, which control either the MSI/LSI circuits or microprocessor, provide the capability of considerably miniaturizing the equipment with additional improvement of the parameters and operating reliability. The integrated coder-decoder will provide the capability of establishing PCM systems with digital transmission on a subscriber link and replacing, in this instance, the multichannel terminal system with an appropriate multiplexer.

CSO: 5500

ARGENTINA

BRIEFS

SATELLITE COMMUNICATION SYSTEM--Buenos Aires, 29 May--The National Telecommunications Enterprise has announced that the Bosque Alegre satellite communications station in the mountains of Cordoba Province will start operating by the end of 1981. The consortium of enterprises which will build the station includes; the Mitsubishi Corporation; Petersen, Thiele and Cruz, Inc; and Nidoco Saci. [Buenos Aires TELAM in Spanish 1600 GMT 29 May 80 PY]

TELECOMMUNICATIONS NETWORK--Buenos Aires, 10 Jun (TELAM)--The National Telecommunications Enterprise has authorized the rural electricity cooperative of Todo, Buenos Aires Province, to make connections with the national telecommunications network. [PY111752 Buenos Aires TELAM in Spanish 2357 GMT 10 Jun 80 PY]

CSO: 5500

BOLIVIA

BRIEFS

RADIO STATION INAUGURATED--Mairana Valley, in Santa Cruz Department, has inaugurated its first radio station which will broadcast on medium wave. This station will cover Mairana Valley and other neighboring towns. The radio station is sponsored by the Mairana Progressive Youth Group and has been installed for purely cultural activities. It will have an output of 250 watts. [La Paz PRESENCIA in Spanish 20 May 80 p 4 PY]

CSO: 5500

BRIEFS

STATION RESUMES OPERATION--San Jose, 30 May (AFP)--The comptroller general's office has authorized the operation of the shortwave radio station Radio Noticias Del Continente, after several months of debate during which several political sectors demanded that it be closed. The debate began when certain conservative groups accused the station of aiming its broadcasts at the South American military regimes and they asked the government to cancel its operating permit on the basis of alleged administrative irregularities committed while transferring the radio station to its present owner. The plaintiffs based their request on the claim that the station's programs represented undue interference in the domestic affairs of countries with which Costa Rica maintains friendly relations. The problem was submitted to the government council, which requested a pronouncement by the comptroller general's office. That office announced its decision today. It states that the authorization given for the operation of the station is valid because although it was not published in the official gazette--as the plaintiffs alleged--the mere signature of the president of the republic is enough to make it valid. The comptroller general's office refused to issue views on other aspects of the problem, such as the ideological, political or national security aspects which, it affirmed, do not fall within its strictly technical purview, a local evening paper reported. The government had announced that it would accept the comptroller general's decision, so it is presumed that the case is closed. The station's director told this agency today that the comptroller's office's resolution was already in the hands of the station's lawyer. [Text] [PA310414 Paris AFP in Spanish 0226 GMT 31 May 80]

CSO: 5500

MINISTER ANNOUNCES NEW REGULATIONS CONCERNING RADIO IMPORTS

Monrovia THE REDEEMER in English 20 May 80 p 1

[Article by Napoleon A. Teage]

[Text] In an attempt at eliminating the many illegal radio communication stations operating within Liberia, the Ministry of Post and Telecommunications has announced stringent new measures aimed at regulating the importation of radio communication equipment into the country.

According to a statement issued by Postal Affairs Minister Col. Emmanuel Twegbe yesterday, effective immediately, all communication equipment imported into Liberia must receive official clearance or approval from his Ministry.

This is to ensure, the Minister noted, that frequency for the equipment are officially assigned and authorization for importation granted.

This step, according to Minister Twegbe, is to assure that registration for said equipment is executed.

Minister Twegbe announced the new measures during a meeting held with members of the Liberia Radio Amateur Association yesterday.

He noted that government was aware that "amateur Radio is a global activity which is conducted out of personal interest for self training in the knowledge of radio technique, intercommunication and services for both technical and the general public, only with a personal aim and without any pecuniary interest or benefit".

It therefore was the desire of his Ministry to have amateur radio buffs continue to operate in the country provided they met the new procedure laid down by government the Minister said.

"Let me inform you that the Ministry of Posts and Telecommunications is directly responsible for all communications activities, including amateur radio, conducted in the Republic of Liberia. These activities are controlled by the Bureau of Radio Regulatory and Licensing of the Ministry of Posts and Telecommunications", Col. Twegbe said.

He then informed them that as long as they "keep within the framework of the regulations and requirements of the amateur Radio service, "we will all be pleased and enjoy this important task".

"On the other hand, if we do not appreciate this privilege for amateur radio, and we abuse it by violating the regulations and the laws that govern these activities, we will have to enforce the provision of the law to deal with such violators", Col. Twegbe concluded.

Responding, the President of the Liberia Amateur Radio Association, Mr. Walcott Benjamin, thanked the Minister for taking time off his busy schedule to meet and acquaint them with the new regulatory measures adopted by government.

He assured the Minister that members of his association will always comply with government regulation.

CSO: 5500

'PANA' OFFICIALS SPEAK AT OPENING OF DAKAR COUNCIL MEETING

AB282147 Paris AFP in French 1840 GMT 28 May 80

[Text] Dakar, 28 May (AFP)--The extraordinary meeting of the inter-governmental council of the Pan-African News Agency (PANA) began on Wednesday in Dakar, seat of the PANA, under the chairmanship of Mr Lucio Lara, Angolan minister of information.

This meeting will study the setting-up of technical, administrative and financial structures of the agency. In their opening address, Mr Lara; Cheikh Ousmane Diallo, director of the PANA; Mr Baba Hakim Aidara, representative of UNESCO, and Mr Saliou Fall, representative of the Senegalese Ministry of Information, emphasized the importance of the decolonization and demonopolization of information within the framework of the new world order.

The gathering, the selection, the choice and dissemination of news which is daily filtered to us by foreign news media, Mr Diallo stated, is beyond our control [word indistinct] and to our disadvantage especially when the developed countries hold the monopoly of the information media.

Mr Lara hoped to put the PANA into operation for the next OAU summit to be held in July in Freetown, Sierra Leone, as envisaged by the inter-governmental council of the PANA.

While waiting for the regional telecommunications satellite project for Africa to be realized, and for the completion of the Pan-African Telecommunications Network (PANAFTEL) in 1983, we have to rely on intermediary techniques, taking into account the realities and possibilities of the host country and member states, Mr Diallo also said.

He regretted that the agency's activities had, up to then, been marked in the administrative and financial spheres by the slow pace at which member states pay their contributions. If the \$1.75 million adopted by the ministerial conference should be able to cover the period necessary for the studies, he added, it should be envisaged that the next budget be calculated on the basis of benefits accruing from services rendered by PANA subscribers.

The meeting of the inter-governmental council of the PANA, which comprise the 50 member states of the OAU, will continue for 3 days.

INTER-AFRICAN AFFAIRS

BRIEFS

PAN-AFRICAN NEWS AGENCY DELAY--(ANSA)-Lisbona, June 3 PANA--The Pan-African News Agency will not begin transmitting this month as had been originally planned. Lucio Lara, member of the Politburo of the only (?Angolan) political party said on his return from Dakar today that "It would be an adventure." In Dakar Lara chaired a special meeting of the agency's intergovernmental council. In the preceding meeting in Lobito in Angola, the council had decided to begin transmissions during the next meeting of the Organization of African Unity (OAU) that will take place in Freetown, Sierra Leone. Lara explained that the postponement was caused by the absence of minimum conditions "to guarantee the agency's normal functioning." He did not disclose when transmissions should begin. Fifty African countries have already backed the agency project. [Text]
[AU031615 Rome ANSA in English 1545 GMT 3 Jun 80]

CSO: 5500

ETHIOPIA

BRIEFS

TELEPHONE, MICROWAVE LINKS--Dessie--Considerable improvements have been registered recently in telecommunication services in four provinces of Wollo region, according to reports reaching here. Telephone cables have been laid to establish links with Beketta town, Wag province, and Eli Woha town, Awasa province. The connection with Beketa town had been disrupted five years ago by counter-revolutionary elements but has now become fully operational following intensive repair. In Kobbo Robit town in Raya Kobo province, and Mujja town, Lasta province, rural radio communications facilities have been set up by the telecommunications service of the northeastern zone of the country. Meanwhile, workers of the telecommunications service are currently actively engaged to bring about a microwave link between the towns of Dessie and Assab expected to reach completion soon. Work on telephone exchanges in towns like Woreilu and Woldia is also underway. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 7 Jun 80 p 6]

CFO: 5500

KENYA

WEST GERMAN RADIO STATION AT NGONG

Nairobi DAILY NATION in English 10 Jun 80 p 10

[Text] An Assistant Minister in the Office of the Vice-President, Mr. Francis Tuva, opened the first West German Radio station in East and Central Africa at Ngong.

Mr. Tuva, who represented Vice-President, Mr. Mwai Kibaki at the opening ceremony, at the weekend, expressed hope that the studio will go a long way in teaching the Voice of Kenya much in the field of broadcasting.

Mr. Tuva noted that lack of expertise forces the VoK to confine itself to local news.

The director-general of the West German Broadcasting Corporation, Mr. Friedrich-Wilhelm von Sell, thanked the Kenyan authorities for the assistance rendered in the construction of the facilities.

Mr. Sell said the need for an intensified dialogue between the industrialised world and the developing countries is given a lot of attention in their programmes.

Noting that freedom of the Press formed the backbone of a free society, Mr. Sell praised the Kenya Government for the liberty enjoyed by the West German reporters in the country.

The West German Ambassador, Dr. Alfred Kuehn, said the choice of Kenya as the base for the radio station was precipitated by Kenya's political stability.

CSO: 5500

BRIEFS

TELEVISION PLAN--The contract scheme for the building of the Nigerian television complex in Yola, Gongola State, has been revised from 383,000 naira to 660,000 naira. A statement from the state commissioner for internal affairs and information said that the decision to revise the scheme followed the government's acceptance of a report submitted by the commission appointed to look into the cause of the delay in completing the project. [Lagos Domestic Service in English 0600 GMT 25 May 80]

CSO: 5500

BRIEFS

POLITICAL BROADCASTS GUIDELINES--The chairman of the Military Commission, Mr Paulo Muwanga, has directed that all statements and announcements originating from members of the various political parties and sent to the Ministry of Information and Broadcasting should be accepted for broadcast only if they have been endorsed by one of the three top officials at the party Secretariat of the respective party. Names of the three Secretariat officials, including sample signatures from each of the Secretariat, should be sent to the Ministry of Information immediately. Mr Muwanga said this will help to eliminate the conflicting and unauthorized statements which have been witnessed of late. The chairman also directed that live coverage on Radio Uganda will be broadcast only to address by national heads of the national political parties on request in advance by the respective party Secretariat. [Text] [LD161554 Kampala Domestic Service in English 1400 GMT 16 Jun 80]

CSO: 5500

KAZAKHISTAN MINISTER VIEWS RECENT TELECOMMUNICATIONS DEVELOPMENTS

LD231511 Alma-Ata KAZAKHISTANSKAYA PRAVDA in Russian 7 May 80 p 2

[Article by Kazakhstan SSR Communications Minister A. Yelibayev under the rubric "Today Is Radio Day": "On the Road of Progress"]

[Excerpts] Kazakhstan's communications workers together with the entire Soviet people are commemorating radio day in conditions of political enthusiasm brought about by the universal competition for the ahead-of-schedule fulfillment of the final year of the 10th Five-Year Plan. The workers of this sector are waging the struggle for the successful implementation of the decisions of the 25th CPSU Congress.

During the 10th Five-Year Plan alone, 3,500 km of cable and radio relay lines were laid, automatic telephone exchanges for 285,000 numbers were commissioned, 37 television stations were set up, and about 500 new communications departments and much more were opened in the republic.

Mention must be made of the achievements in the use of telegraph channels for the facsimile transmission of newspaper matrices to printing presses located in outlying areas.

By such a method 11 central newspapers are reproduced in Alma-Ata, six in Tselinograd and four in Karaganda. In addition, for the first time in our country the facsimile transmission of four republican papers has been organized to the oblast centers, Tselinograd and Karaganda. Subscribers can now read periodicals on their day of issue in all the republic's cities and rayon centers.

There have been appreciable successes in the development of the technical bases of radio broadcasting, and in providing radio and television reception capability.

We now possess one of the country's largest radio relay networks. Some 2,500 radio centers of varying capacity, into which more than 3.5 million radio speakers are plugged, relay republican and central programs for 10-17 hours daily. The annual increase in these radio speaker outlets has reached 230,000. In many cities of the republic three-channel broadcasting systems have been introduced.

There has been appreciable progress in the development of television broadcasting's technical facilities. In connection with the widespread introduction of special communications lines a ramified network of television channels has been created over a vast area of Kazakhstan's territory. Central television's "Vostok" channel can now be received in all our oblasts and republican television can be received in 18 oblasts.

The republic's party and soviet organs are paying tremendous attention to the further development of the television network. Thanks to this concern the volume of construction of special projects is increasing with each passing year. Television relay facilities and radio relay lines are being intensively set up and thousands of television screens have already come to life with their commissioning this year. This year for the first time the inhabitants of Bakanas, Panfilov, Zaysan, Kushmuran, Zhangiz-Tobe, Kurgaldzhino and other rayon centers will be able to watch republican programs.

Using the latest facilities, we are carrying out widespread introduction of the "Ekran" equipment in many rayons of the eastern oblasts. Such equipment will soon be produced in Alma-Ata and then most of the rayons of the Vostochno-Kazakhstanskaya, Semipalatinskaya, Taldy-Kurganskaya, Karagandinskaya, Dzhezkazganskaya and Pavlodarskaya oblasts will receive cheap, compact equipment to provide for the local relaying of central television.

CSO: 5500

USSR

YUSHKYAVICHYUS ON OLYMPIC BROADCAST CAPABILITIES

Moscow NEDELYA in Russian No 19, 5-11 May 80 pp 22-23

[Interview with Genrikh Yushkyavichyus, deputy Chairman of USSR State Committee for Television and Radio Broadcasting by V. Ospiashchev: "News Coverage for the Entire Planet"]

/Text/ Almost two billion people will be able to watch the Moscow Olympic Games due to television. G. Yushkyavichyus, Deputy Chairman of the USSR State Committee for Television and Radio Broadcasting tells us about preparations for the coverage for the entire planet.

/Question/ Genrikh Zigmundovich, tell us about the history of Olympic Broadcasts to other countries.

/Answer/ In 1964 for the first time ever the Tokyo Olympic Games were broadcast through a communications satellite, although the broadcasts were intermittent. These were short, twenty-minute broadcasts. At that time the satellites could not provide continuous coverage. "Complete" television coverage of the international sporting holiday began in 1968 in Mexico. It was here, as a matter of fact, that world-wide Olympic television was born.

In Mexico an effort was made to create a unified world-wide program of Olympic broadcasts, for which they brought in the best sports television experts. But the effort did not pan out. As they learned during the course of the Olympics, it is impossible to create a program that is ideal for all countries and viewers. For this reason at that time many television organizations routinely had to make additional broadcasts, which substantially expanded the framework of the world-wide programming. But the minuses of the unified program were particularly felt in Munich. At that time I was the manager of a working group of International Television, which also had its own plan of action. I remember very well the difficulties that we encountered in making it a reality. During the

Olympics several interesting competitions took place simultaneously, and Polish television requested full coverage of boxing, Hungary was prepared to spend hours upon hours on fencing, and Bulgaria was most interested in weight lifting. In a word, unified programming did not satisfy even one group of countries.

In preparing for the Moscow Olympic Games, we have generally rejected the principle of world-wide unified programming. Instead we have decided to prepare 20 international programs. In other words we are trying to create the most "democratic" conditions for showing the Olympic competitions. What does this mean? The new Olympic television and radio broadcasting complex incorporates several independent television centers. Each center can put together its own program from the pictures being fed into them from the stadiums. The directors of the national or international television organizations have only to select the sports or sportsmen they wish to show. They have an enormous amount of information at their disposal. In such sports as gymnastics, track and field, boxing, wrestling, and fencing there will be several programs. You will agree, of course, that this is very convenient.

Perhaps I should spend more time on the television and radio broadcasting complex itself. What is this five-storey building? In area it represents about one third of the Ostankino television center. However there is a lot more equipment in the new building and the equipment is much more up to date. There are 22 studios of two types here. Some of the studios have a floor space of 60 square meters and three television cameras. Up to 10 programs can be "put together" here at the same time. The floor space of the other studios is 150 square meters; they have four cameras and, of course, more possibilities for creativity.

/Question/ What sorts of equipment are to be concentrated at the stadiums themselves?

/Answer/ Reporting from the stadiums will be done by 280 television cameras and 73 portable television stations. All of this equipment is under the supervision of the chief technical and main programming coordinators, who will be working in the television and radio broadcasting complex. When necessary both of them will be able to make needed corrections to the broadcasts. I will not cite some figures. In the Olympic arenas of the capitol there are spaces for 1,112 commentators; there are another 100 spaces for commentators in Tallin, Leningrad, Kiev and Minsk, where competitions in sailing and soccer will be held. From Moscow we plan to transmit 20 international television and 100 radio broadcasting programs. For comparison

I will say that at the Munich Olympic Games, which were considered the best according to the number of technical means of communications, they had 150 television cameras, 25 portable television stations, 850 spaces for commentators and 12 television channels.

/Question/ In the western press it has been reported that if the American television company NBC is not represented at the Olympic Games, Soviet television will be unable to show them to the entire world. Is this so?

/Answer/ I must say that this is very misleading. According to the contract that exists between NBC and Soviet television, it is not the American television company that is giving us equipment, but we who are to provide it with equipment. This equipment has already been installed and is almost ready for operation. In addition, I will say that NBC insisted that besides the cameras for international broadcasting they be allocated additional cameras, which the American operators will run during the Olympics. We met them halfway. The Americans were given 28 such cameras. This is more cameras than all of the American companies put together had at previous Olympic Games. It is true that following the USSR Spartakiad NBC was inclined not to accept some of these cameras because it was convinced that our international coverage objectively and honestly showed the winning sportsmen regardless of the nationality. If the American company does not come to Moscow, it is primarily the people of the USA who will suffer in being deprived of the opportunity to see the Olympic Games. I remind you that NBC only has the right to transmit the Games to the USA.

/Question/ No matter how up to date the equipment, much depends upon how people operate it. In this case I am referring to the directors, operators and technicians. Are they ready for the start of the Olympic Games?

/Answer/ Nearly 12,000 specialists, including more than 4,000 foreign specialists, are involved in preparing for the worldwide coverage of the Olympic Games. It is understood that we could not get by with just the efforts of the Muscovites, so we invited more than 1,000 workers from local television studios to the Olympics. It is true that they did not have as much experience in sports broadcasting as the Central Television organization and they had to learn this art. At the local levels Olympic brigades of directors and operators were formed. They were given all necessary equipment and an opportunity over a two year period to practice showing the kinds of sports that they are to broadcast during the Olympics. We divided responsibilities among the studios in plenty of time.

For example, the Georgian television organization will broadcast boxing events to the entire world; Leningrad television will show basketball; Latvian television will show volleyball; and the equestrian events were assigned to the Kazan television organization. Practice was concluded in three-month long courses. The students became familiar with a large number of subjects - and with videotapes made at previous Olympics and at the largest international and Soviet competitions, and then they submitted their model to the judgement of experts. At first they were judged by Soviet specialists and then by international specialists, who participated in a creative meeting in December 1979 of representatives of television organizations and unions from 27 countries, who are to broadcast the Moscow Olympic Games. The guests gave high marks to the work of their Soviet colleagues, especially at the Seventh Summer Spartakiad, which was an excellent school for the workers of Soviet television and radio broadcasting.

/Question/ Has the program of broadcasts from the 1980 Olympic Games been approved?

/Answer/ It has been prepared by the Main Editorial Staff for Sports Programming of the USSR State Committee for Television and Radio Broadcasting, but it is still called a draft. It is proposed that live coverage of each day's main Olympic events will be shown on the First Program of Central Television from 10 AM to 3 PM and from 7 PM to 9 PM. Twice a day following the evening and morning editions of the "Vremya" program, sports enthusiasts will be able to find out about the latest Olympic news in special summaries. According to the draft, the Fourth All-Union Program is to be used exclusively for Olympic broadcasts from 9 AM to 9 PM. They will take up most of the "Orbita" program.

The commission of the Organizational Committee of the 1980 Olympics for Television and Radio Broadcasting, which includes representatives of various ministries and departments and which is chaired by the Chairman of the USSR State Committee for Television and Radio Broadcasting, Sergey Georgiyevich Lapin, is familiar with our proposals and has in principle approved them. This commission is involved in all matters concerning television and radio broadcasting from the Olympic Games.

/Question/ Genrikh Zigmundovich, do you like sports yourself?

/Answer/ Of course. I have long been a fan of our basketball players and sailing sportsmen. When I was young I participated in these sports. I was a prize winner in the Soviet Young Peoples' Championship in sailing; and I played on the institute basketball team. How could I be indifferent to the sound of the balls and of the wind filling the sails? Particularly at the Olympic Games.

8927

CSO: 5500

TELECOMMUNICATIONS CHIEF DISCUSSES POLICIES, INDUSTRY ROLE

Helsinki SUOMEN KUVALEHTI in Finnish 2 May 80 pp 74-78

[Article by Leena Hayrinen: "Information, Power and Tarjanne"]

[Text] The information society is coming. The revolution has already begun, but only the most alert among us have noticed it. Discussion centering about the Post and Telegraph Administration is also associated with this: Who gets to control the flow of information in Finland?

Director Pekka Tarjanne, during whose term in office the Post Office has run into a totally new situation, discusses this. It has to compete with private firms.

"We are becoming an information society."

This is how Post and Telegraph Administration director Pekka Tarjanne wanted to begin. He feels the expression "tieto" [information, knowledge, et al] society is more descriptive than "informaatie" [information] society:

"It is a matter of much more than just data: the fact that information is straight and level, that it has to do with information traffic, the moving of national and international information skills, the protection of information from the standpoint of the individual citizen.

"Along with this, certain basic questions throw a new light on the matter, especially on us who work with information traffic. Freedom of speech, a traditional basic right, is replaced by freedom of information.

"Actually, we are talking about a third technical revolution, symbolized by the microprocessor. In the 1980's and 1990's, the new technology will have its effect on the life of every citizen.

"The gathering, handling and transfer of information will become easier, faster and cheaper than now, and soon there will really be no technical limits at all. At that point, the question arises as to what the citizen and the society's real needs, in terms of applying these new possibilities, are.

"These matters will reach the point where their very nature and extensiveness are such that a single engineer or technocrat can no longer make decisions about them; rather, political solutions will be required. No wonder that politicians and governments all over the world are interested in these matters. Indeed, they should be."

So, too, we in Finland are interested in them. In our country, the evolution is following general trends: In 1950 10 percent of our labor force was employed in the so-called information professions, in which over half the job consists of gathering, handling or transferring information, but now that figure is already 30 percent and by the turn of the century over half our workers will be involved in them, according to predictions.

No Reason to Fear Technology

Who governs and controls the information society? Who benefits from it?

"Isn't this a people's world," Pekka Tarjanne replied.

"Fortunately, Finland has a good Constitution which protects the citizen's power of decision under new circumstances. Under the pressures of development, it is important for us not to begin to fear a new technology.

"I say: Fear of technology is the beginning of stupidity. We should not be afraid of it, but we should not worship it too much either, not reduce ourselves to being the slaves of technology. Technology is of no importance in itself; rather, it should serve people. It is up to us to keep technology under firm control.

"In the face of this growth in the amount of information available for use and the development of technology, there is good reason for remembering Snellman's reflection that a small country's strength always lies in civilization. So far, we have managed pretty well following that advice and now it is more important than ever.

"Energy and raw material problems will be threatening economies and peace as well. And, since we are not very abundantly blessed with natural resources, we have to invest in education and make do with our expertise in the information sciences. We are off to a good start, but we have to stay on top of international developments in the information science field."

Common Advantage and Profitability

How do you interpret the words /"healthy business principles and common advantage"/ [in italics]?

"The Post and Telegraph Administration is a government business institution governed by the law on the basis of the general principles of the economical maintenance of commercial establishments. These words cited from the law itself are native to Finland. The Post Office will soon be 350 years old.

Thus it is obvious that certain principles and a certain way of doing things have come into being during its existence. Today we can continue without any big revolutions that might deviate us from this chosen basis of operation.

"So, we operate in accordance with business principles, charging for our services on the basis of costs.

"But, if we feel that it is to our common advantage to also handle unprofitable services in a businesslike manner, we are prepared to do so. But in that event, the decision must come from the Council of State and Parliament, and we must receive compensation for it so that our economy is in line with the law governing management of the economy."

Director Tarjanne cited as an example a case in which the common good came before profitability. Post Office buses continue to operate as a mass-transport medium for outlying districts despite the fact that this service has not been a profitable one since the mail delivery system was changed. In his opinion, the Post Office should be compensated for this service in the budget. Nevertheless, it has not received same. The Post Office's own economy is in such good shape that it was able to cover the cost of the 80-million-mark annual deficit it incurred.

Post Office Monopoly Is Crumbling

Mail delivery and courier services offered by private firms are a phenomenon of today. Gaps have appeared in the market and businessmen have rushed to fill them. In some communities, the Post Office suffered losses when delivery of early editions of newspapers and, more recently, of single copies of some magazines was taken out of the hands of the Post Office. The new entrepreneurs offer special services, speed and flexibility.

Are you politically unwilling to compete with private firms, director Tarjanne?

"The question is not whether I am politically willing, nor perhaps is that what was intended by the question.

"The competition has really increased as regards both mail delivery and telecommunications which before constituted an either formally controlled or unregulated Post Office monopoly. The evolution of the society and of technology has led to a situation where the monopoly can no longer be preserved, nor have we tried to support the crumbling monopoly through regulation. Nor does it in practice exist anymore other than in the domains of issuing postage stamps and handling long-distance telephone service.

"The competition from part of the market is strong. We must intensify our business enterprise and marketing activities. As new occupational domains arise, we must see to our ability to compete.

"I want to emphasize that in these matters we must comply with the law. In other words, we will jealously guard our rights in those domains in which we constitute a monopoly as provided by law. In other domains, we want competition in accordance with sound business principles and without any special advantages in our favor. It is up to us to be capable of handling ourselves well on the market with our own resources."

What kind of ability to compete does the Post and Telegraph Administration have?

"The situation varies from one year to another. This is a dynamic society and that's what it must be.

"In domains where the main thing is to have a national distribution network our ability to compete is in part even superior. We have 4,000 local post offices and a dense distribution network covering the whole country.

"But our strength and our weakness have always been and still are an equal rate policy. We are very proud of our postal rates, by means of which a private citizen can send a letter from Utsjoki to Hanko for the same price as a big customer can send 100,000 letters from one part of Helsinki to another. But recently, with competition getting keener and the demands of the economy growing, this has led to a situation in which private operations that skim the cream off the profits are appearing on the inland water routes, which are used a lot for mail and the cost of which is consequently low as regards shipment. There is no doubt that they can handle precisely this most profitable part of the operation more cheaply."

At any rate, however, the director reacts to these cream-skimmers like a true liberal:

"This is a natural situation. There is nothing wrong with it. The customers must come first, not traditional territorial boundaries."

Everyone Is an Expert

"Our answer to private competition is not a tightening up of the monopoly and of supervision, rather a raising of our standards of service," director Tarjanne said.

He listed a number of steps being taken to achieve this. A telephone exchange sorting system with its trunkline transmission was developed during the 1970's. The Post Office's "flagship," the new mail-handling center in Pasila, is ready and has gotten over its initial hurdles. The special delivery service for commercial and industrial mail at special rates between Helsinki and Turku has been well received and is being extended.

The Post Office plans to increase the choice of services available at local post offices in sparsely settled areas by in some ways developing public administration service centers. It also plans to expand services offered

on mail delivery routes in these same areas: In addition to their regular postal duties, mailmen could also take care of some social services there.

At the end of 1978 the decision was made to inaugurate telefax [facsimile] and telex [teletypewriter] service and this year a general data-transfer network will be completed. In 1982 the Southern Finland automatic car-radio telephone network, which will be rapidly extended to Lapland, is to begin operating.

The establishment of a national person-identification system was decided on last year.

Still, the Post and Telegraph Administration and the Post Office are criticized for their passiveness. It is claimed that they too readily leave profitable activities to private firms at a time when there is good reason to hurl themselves into the fray of raw competition.

"It is a good thing that we are being criticized," Pekka Tarjanne said. "Post Office activity involves close contact with people. In some way, every citizen has business with us every day and consequently everyone is also an expert on the Post Office. We are the most broadly scattered public servant in the country: 8,000 collection points and 45,000 employees.

"From the standpoint of Post Office management, it is a good thing for the press and the public to very readily react if a letter does not reach its destination quickly enough or if the telephone acts up. The public's reaction is a much better gauge of the quality of service offered than expensive investigations. It is challenging for us that our work be regarded as important.

"If we were not subjected to criticism, we would bury ourselves behind our desks. Some of us might even fall asleep. We dare not let that happen."

Evaluation Time Again

The volume of mail handled last year increased 4.5 percent and that of telecommunications 12 percent. It has been predicted that in the 1980's telecommunications traffic will overtake mail traffic but, according to Tarjanne, there is not yet any sign of this happening.

The situation is quite different as far as mail and telecommunications are concerned. Criticism to the effect that the Post Office has left the profitable activities to private firms and the rest to be handled by the public services has been particularly leveled at the 60 franchised stations that handle local telephone service in remote settled areas. The franchised stations geographically cover one-quarter of the nation but three-quarters of the telephone traffic, while the Post Office serves three-quarters of the country but only one-quarter of the telephone traffic, in addition to which it handles all of the long-distance telephone traffic.

Since telecommunications technology is making great advances at this time, it is no longer a question of just ordinary telephone calls, but one of tying many other operations into the telephone network. The question as to who will be controlling this market must be viewed in an entirely new light.

"Here, the situation is a natural consequence of development. Telephone service began in the cities where far-sighted citizens set it in motion. Elsewhere in the world, telephone service was long ago centralized and centrally-controlled post offices handle it. Here, things didn't develop that way. Our organization is unique in the world, but it has been well able to meet the needs and wishes of its customers. From the standpoint of telephone density, Finland is among the world's foremost countries.

"But, since many other operations will in the future be integrated into the telephone network, the situation is a new one. Calmly and without preconceived notions, we must again evaluate our telecommunications administration."

The Imperial Telephone Decree of 1866 and other laws governing mail and telegraph services are hopelessly outdated. They go back to a time when nothing was known of present-day technical developments. Therefore, there are sectors that are not regulated by any laws. The Attorney General's Office has requested the government to urgently draft new legislation.

"I am of exactly the same opinion as the Attorney General's Office and the Telephone Company Union on the need for new legislation," Tarjanne said, "but, unfortunately, nothing has happened."

In addition to legislation, the institution's organization is also under scrutiny. A study group, which the transport minister set up last fall and whose deadline will be reached at the end of May, is investigating it. The group has been assigned the task of determining whether mail and telecommunications operations could be more effectively handled by dividing the institution into separate national post and telecommunications offices.

"There is room for development in the organization," Tarjanne said. "In the 1970's the district and local administration was modernized and its operational capacity reformed, but the central administration is a bottleneck. It is organized along outmoded lines and, if the study group can help reform it, I gladly welcome such reform."

No Room for Lagging Behind

With the changes in and expansion of information services, in addition to public institutions, private businessmen and huge, multinational companies are now and will in the future be active in that market. The information policy problem is: Who should be allowed to handle these matters in this country?

"This is the most essential question and also the reason why we have requested the drafting of legislation for the sector. It is generally understandable how big and how important matters dealt with in terms of an information policy are. Energy is now becoming too much of an issue for squabbling with one another, as the different sectors involved: industry, the parties and others, draw the boundaries of their territories in their own sandbox.

"I seriously warn you: Only by combining our forces in Finland can we preserve our independence in the information society.

"Aside from the information industry, the administration of the service and the services are being integrated on a worldwide basis. If we cannot be pretty much of the same opinion, we will lag behind. There is no room for us to do that. So, I don't want to lay too much emphasis on these home territory issues, rather on the need for a set of general rules to go by," Tarjanne said.

Is there room for letting the information service fall into the hands of the multinational companies? Do these big companies represent a danger?

"I would not speak of them as a danger; rather, I would refer to their role as that of a challenger," Tarjanne replied. "The big multinational companies have been able to invest huge sums in product development and technology. If we had no contact with them, it would be hard for us to keep up with technological development.

"But, on the other hand, Finnish industry, information technology and the telecommunications administration must be made capable of creating developments and influencing others at an international level, of pursuing sales and of being active. Otherwise, we will be trampled underfoot and that means that it would no longer be in the interests of the multinational companies to steadily and properly advance matters in that domain in Finland."

Director Tarjanne feels that it is a good thing that many of the industry's big multinational companies have established themselves in Finland through their daughter companies.

"This is a guarantee that they will be making choices here in terms of their own advantages."

He is also optimistic about the opportunities for the Finnish industry. It has demonstrated its ability and found new markets.

It has, however, been noted that, by pursuing a long-term procurement policy, the Post and Telegraph Administration could also help Finnish businesses to develop their products. Tarjanne clarified the point:

"There has been cooperation, there are several product development agreements and such activity will be continued and intensified. The volume of our procurements for domestic industries has been constantly rising. But this does not mean that we have given up our position in support of fair, open competition. Firms have been able to compete. The situation can withstand criticism."

Network Will Withstand Crises

And what if a crisis arises? Wouldn't it be frightening if the flow of information were then to a certain important extent in the hands of the multinational companies?

"From an international standpoint, we have a highly developed information service network which will certainly withstand some pretty big crises. Its operation cannot be hurt in the same way as, for example, some sort of oil supply."

A new organization may possibly produce key positions worth aiming for. Information is power and some political faction that has realized the vast social and economic significance of telecommunications could be quite willing and ready to sit on that throne of power.

A repressed crimson flush pervaded director Tarjanne's face:

"It is absolutely unthinkable that an organization would reorganize itself on such a basis. I don't believe that anyone seriously thinks that."

So socialism is not knocking at the door with its bony fist yet?

"I am now concentrating on running this office....," Tarjanne said, hemming a couple of times.

Then, another bit of management philosophy:

"During the past few years, there has been vigorous growth inside this building. As is usual with government offices, this is self-sufficient and chimneyless. This is only natural; there has been no need for anything else.

"But, since the competition has stiffened, the office has been opened to the public. Those functions of the office having to do with serving businesses have been accentuated and, when that happens, questions regarding management capability become important in a new sense.

"We have a broad management and middle management training program in progress which has clearly changed attitudes. I am an optimist. I believe that we will reach a point from which, better than now, we can compare ourselves with the big private business firms.

"Now, we in the Post Office too can already speak of goal-oriented management and responsibility for getting results."

FINLAND

BRIEFS

TELETYPewriter EXCHANGE OPENS—Kouvola (US)—Finland's third electronic teletypewriter exchange has begun operations in Kouvola. The first one was built in Tampere, also for the State Railways, in 1977 and the second for the Post and Telegraph Administration in Helsinki. The Kouvola exchange belongs to the State Railways' own teletypewriter network, through which it connects with Finland and the worldwide telex network via Helsinki. Construction of the State Railways teletypewriter network was begun in the early 1960's. About 200 teletypewriters belong to it. The Kouvola and Tampere exchanges are now electronically run; the others have the old electromechanical equipment. They too will be modernized. The Helsinki exchange will begin operating next fall. [Text] [Helsinki UUSI SUOMI in Finnish 20 Apr 80 p 6] 11466

CSO: 5500

BRIEFS

COMMUNIST RADIO BROADCASTING--The Seine-Saint-Denis communist federation has set up an unauthorized radio station which began broadcasting Tuesday, 6 May, on 90 megahertz FM. "Living and working in Seine-Saint-Denis" is the name this station goes by, and its goal is to allow "men and women, from unskilled laborers to expert specialists, inquisitive, young, the select few" to "communicate with each other, to understand one another, and in this way to create new bonds of solidarity that promote the struggle needed to achieve unity and change." The radio station, which can be heard in the entire department in spite of jamming attempts, according to the people who run the station, is broadcasting during the daytime from 0900 to 2100 at least until 11 May. Listeners are invited to phone in to express their views on [line possibly dropped] received Tuesday and about a hundred people were able to get on the air. The communist federation points out that this initiative of theirs will, in its confrontation with the authorities, be a chance to affirm the federation's "desire for a genuinely democratic and pluralistic public information service." [Text] [Paris LE MONDE in French 8 May 80 p 11] 9631

CSO: 5500

ENGINEERS DISCUSS ADVANTAGES OF INTERSAT NET FOR COUNTRY

Reykjavik MORGUNBLADID in Icelandic 18 May 80 p 38

[Article by J.T.: "Satellite Receiving Station Skyggnir in Operation at the End of August, Will Be Used Primary for Reception of Telephone Messages and Television as Needed"]

[Text] The satellite receiving station Skyggnir, located below Ulfarsfell in the Mosfell district, is expected to be ready for use at the end of summer and work is now being carried out energetically to complete the installation and testing of the equipment. The contractor plans to turn over the station to the Post Office and Telephone System for its use around the end of August or early September. The Construction Committee has had charge of things on behalf of the Post Office and Telephone System while construction was under way but the Operations Committee will henceforth take over daily control of the station.

Seated on the Construction Committee was Gustaf Arnar, chief engineer of the Technical and Operations Department of the Post Office and Telephone System, technician Jon Valdimarsson and engineer Jon Thoroddur Jonsson. The latter has worked with the contractor and will have control over the operations of the station. A MORGUNBLADID reporter questioned these three recently about the station and they discussed the tasks that Skyggnir is expected to perform. Gustaf Arnar spoke for the committee.

"The task of the Skyggnir station is, first and foremost, to increase possibilities for phone service between Iceland and other countries. The submarine cables Scotice, between Iceland, the Faroese Islands and England, and Icecan, between Iceland and Canada, are now in full use. Although their capacity was augmented, to some degree, recently it has been absolutely used to the limit the last 2 years and an increase of telephone channels

has become urgent. This could be accomplished either by laying down a new submarine cable or by construction of a satellite receiving station for the same purpose. The latter solution was the one chosen. Another task of Skyggnir is the reception of television programing but phone service is the main function of the station. There has been the misconception recently that the station was built largely for television."

Can you explain briefly how the receiving station works?

"In general it works through receiving commands or signals from an earth satellite, which is positioned over the equator and follows the earth as it turns and is thereby more or less stationary in terms of any position on the surface of the earth. A satellite station in another country sends a signal to the satellite which relays it to use, although the signal is very weak. The antenna of the receiving station receives the signal which is then amplified and special equipment makes possible the realization of a telephone message from the signal. From the station the message will travel to the Muli station at Grensaveg, which has still to be established, and from there into the phone system in Reykjavik or out into the interior. In the case of television programing much the same thing happens. Via the earth satellite a signal is received for a station in a given country, with which Icelandic television is in communication with, sent to the switchboard at the Muli station and from there, by special cable, to the Laugaveg television center."

Why was this place chosen for the station?

"One thing determining the choice of a site was its angle in relation to the earth satellite. The three satellites, with which we can establish communications with, are all on the equator and it is thus desirable to have the site of the station as far south as possible. And the angle of the station in relation to the satellite may not be less than 10-12 degrees. At this site the angle is 17.5 degrees. We also had discussions with meteorologists on the climates of the sites under consideration and the statements of the meteorologists were given weight. Another thing having influence upon the choice of a site was its distance from inhabited areas and services, electricity and how much the land cost."

Has Skyggnir cost much more than a submarine cable would have or was the satellite receiving station a cheaper solution than laying a new cable?

"The receiving station is considerably more expensive than a submarine cable but it is still considered the cheaper solution. If we look at costs then we must take into consideration that the submarine cable would only have been able to increase the number of telephone channels to a set degree whereas the station can be improved continually and also makes possible the establishment of communications with all those countries that operate similar stations. And that is far simpler than going to other countries through submarine cables and intermediate stations, perhaps a large number of them. There are now more than 100 countries in the Intersat system,

which is a kind of cooperative association of all of those countries and operates the satellites with each country paying a set amount of money in proportion to its use of the satellites. It may also be mentioned that delays are less of a problem than with a submarine cable. Everything is duplicated in the receiving station and it does not, generally speaking, take long to change a broken part and it is unlikely that communications will be interrupted for many days, as is the case with submarine cables. A submarine cable can break and it will possibly take many days to get a repair ship and the ship may be unable to get into position on the site. The repairs themselves take several days. There have also been cases where submarine cables have been out of order for many weeks. Thus there is much more security in a satellite receiving station. Although it can also break down or be damaged, that is, through the natural elements, this is likely to happen only rarely. It may be mentioned that in the 15 years in which the Intersat system has been in operation utilization has been 99.9 percent."

How great a wind force can the antenna dish withstand?

"The station is designed to withstand the greatest tempests. The station can operate in winds up to 80 kn, 14 on the Beaufort scale. The control system, which can function automatically, steers the antenna towards the direction in which there is the greatest signal strength from the satellite. If the wind force exceeds 80 kn the station is taken out of operation and the antenna lowered."

Will we stop using the submarine cables when the satellite receiving station comes into use or will both systems continue in use?

"The agreement with the Greater Scandinavian Telegraph Company makes provision for cessation of the utilization of the submarine cables before the end of 1985, but these cables were put into operation during 1961 or 1962 and their useful lives were not calculated at longer than 20-25 years. For the next few years both of the submarine cables, and the receiving station, will be needed but what will happen after 1985 is still unclear. It would be, to some degree, difficult to be dependent upon only one system for communications with foreign countries and the policy of most countries is to have a satellite receiving station as well as submarine cables. A decision will have to be made about this in the future. On the other hand, it should be remembered also that there are still plans to lay a submarine cable between Europe and the United States, so that they are still not considered entirely obsolete."

Will there be changes in foreign phone connections with the arrival of the satellite receiving station?

"At the time that the Skyggnir station goes into service new equipment will be put into use that will permit phone users to call abroad directly. That will be, naturally, the major change, and we are planning to open direct

connections with Germany and southern Europe quickly. In the case of Sweden, a new receiving station is being built and it will be difficult to establish connections with Sweden before late October. At the same time connections will be established with the other Scandinavian countries and, finally, with England. Otherwise direct connections will be established little by little to lessen the impact of the changes. There has been frequent complaint in recent years of the difficulty in calling Iceland from Germany and other European countries and a notable improvement will now be achieved. It may be said that changes will take place in phone bills if people talk too long due to the fact that the operator will no longer come on the line to remind the caller of time expired."

Will the "09" telephone exchanges no longer be used after the arrival of direct dialing?

"No, they will still be used since many prefer to place calls through the operator in spite of being able to dial directly. Some will, perhaps, be hesitant about directly dialing abroad etc., so that the exchanges will still be needed. On the other hand, the load on them will decrease. To be sure! And it is unbelievable what the exchange operators have accomplished under difficult and crowded conditions and it is evident that their productivity is much higher than is normal for many countries. The problem is, moreover, always the same, that the lines cannot always bear the load placed upon them and for this reason telephone overloads occur and delay. This can be avoided with the satellite receiving station and it, together with the submarine cables, has a capacity for more telephone conversations than is the case now and makes it possible to establish more or less simultaneous phone connections abroad."

Will foreign calls be cheaper?

"We plan on the receiving station operating at a deficit for the first two years but after that it must pay its own way. It is a little difficult to say, in a breadth, what is going to happen with phone rates but after telephone channels to countries abroad have been increased the revenues of the Post Office and Telephone System will increase. It will probably be the policy that profits from the station will be used, to some degree, for decreased rates. For the time being, however, they will be, in fact, unchanged."

How is the agreement with the Greater Scandinavian Telegraph Company structured? How big a share does it have in the receiving station?

"As mentioned above, cooperation between the Post Office and Telephone System and the Greater Scandinavian Telegraph Company will last until 1985 in connection with the submarine cables. Similar cooperation is in force in connection with the receiving station. The share of the company is around 37 percent of the construction costs of the station and the company will receive revenues according to an agreement which will extend until

1991. After that receiving station will be entirely an Icelandic property. If, on the other hand, we wish to gain full control over it before that date, we can buy out the Greater Scandinavian Telegraph Company after the beginning of 1986. The total cost of the Skyggnir station is around 2.2 billion krona."

How much television programming will come through the station?

"Most discussion has been about the purchase of set, daily news items from Europe, of interest to us, which the Icelandic television will take from the programming received. The reception of television programming will take place in such a way that when the Icelandic television has purchased a foreign program it will inform us, preferably with several days notice, and then we will consider whether or not it will be possible to obtain a channel and whether or not the program can be received. This can, on the other hand, be done with shorter notice, even a few hours, but what will determine is channel availability in the satellite at the time needed. We will then receive the program, send it to our switchboard at the Muli station, and from there it will go by cable to the state television, as stated above. In the beginning discussion has been about news items but there would be no difficulty in receiving whatever the state television should request.

In this connection it may be mentioned that the funeral of Tito could have been televised instantaneously. The daily news report came just at break time and the funeral had taken place that some morning. The state television could have shown pictures of the funeral that evening. It is clear that the receiving station will speed up the arrival of programming in Iceland by at least a full day."

The disk or antenna is around 31 m across and it turns on a special mounting, as has been noted. The station house itself is actually the base of the antenna and in it are various pieces of equipment and devices, quarters for employees, office space, a meeting room, work rooms etc. And how many will work at the station?

"There will be only three persons there on a regular basis and their job will primarily be to see to the equipment and perform whatever tasks are necessary. The three will be a telephone supervisor and two telephone workers, who have received special training in the United States on operating such a station. The station will be under the daily control of an engineer who will, in the beginning at least, be at the station most of the day. On the other hand, the station will be, for the most part, operated from the Muli station. From there it is possible to operate everything and for this reason no plans have been made for there to be employees at the station except such as are necessary for normal day time operations in the station. The number of employees has been held very low and they will be fewer than at comparable stations abroad. On the other hand, an increase may prove to be necessary but we will rather start with few and change according to need."

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